

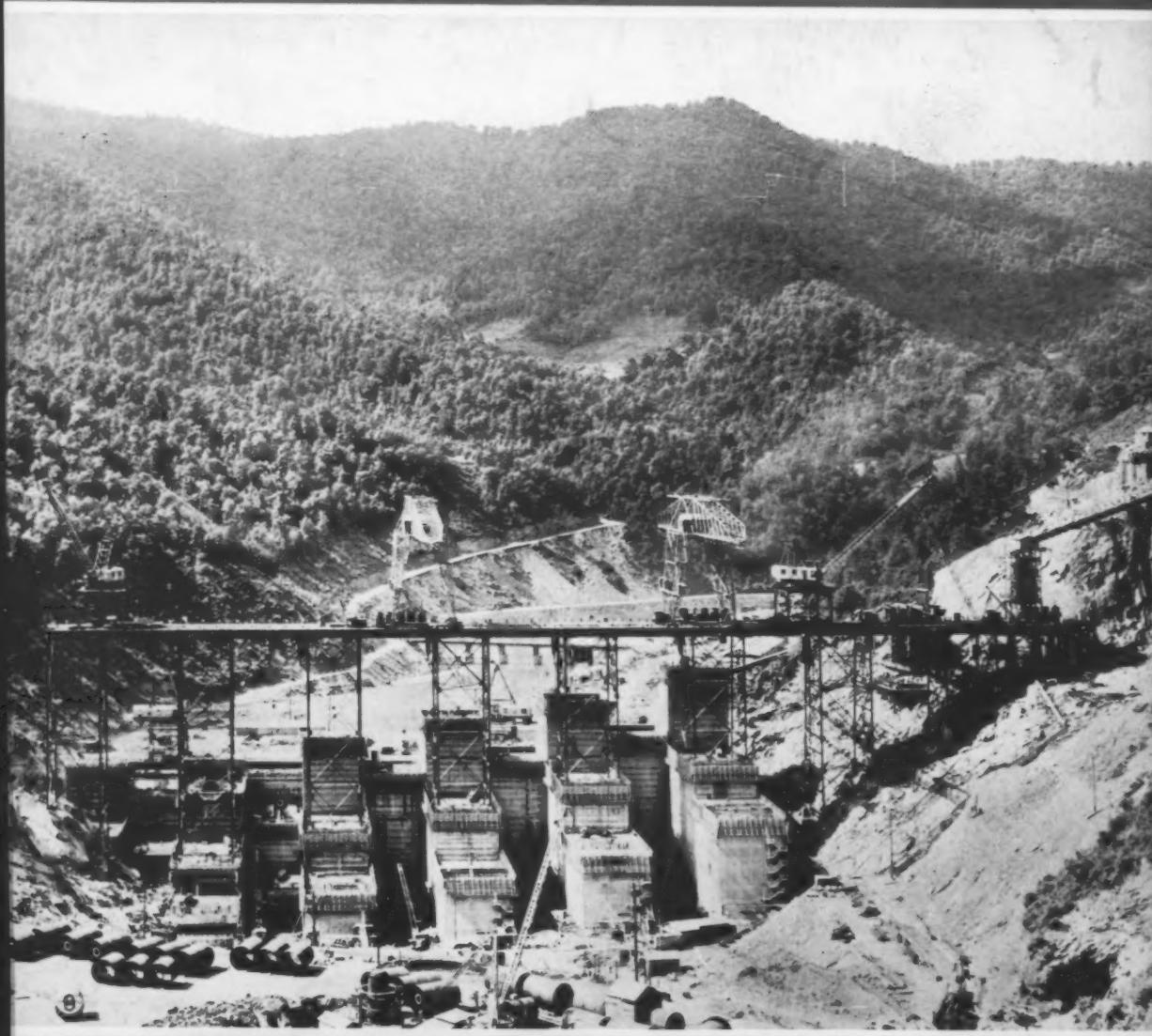
FEBRUARY, 1945

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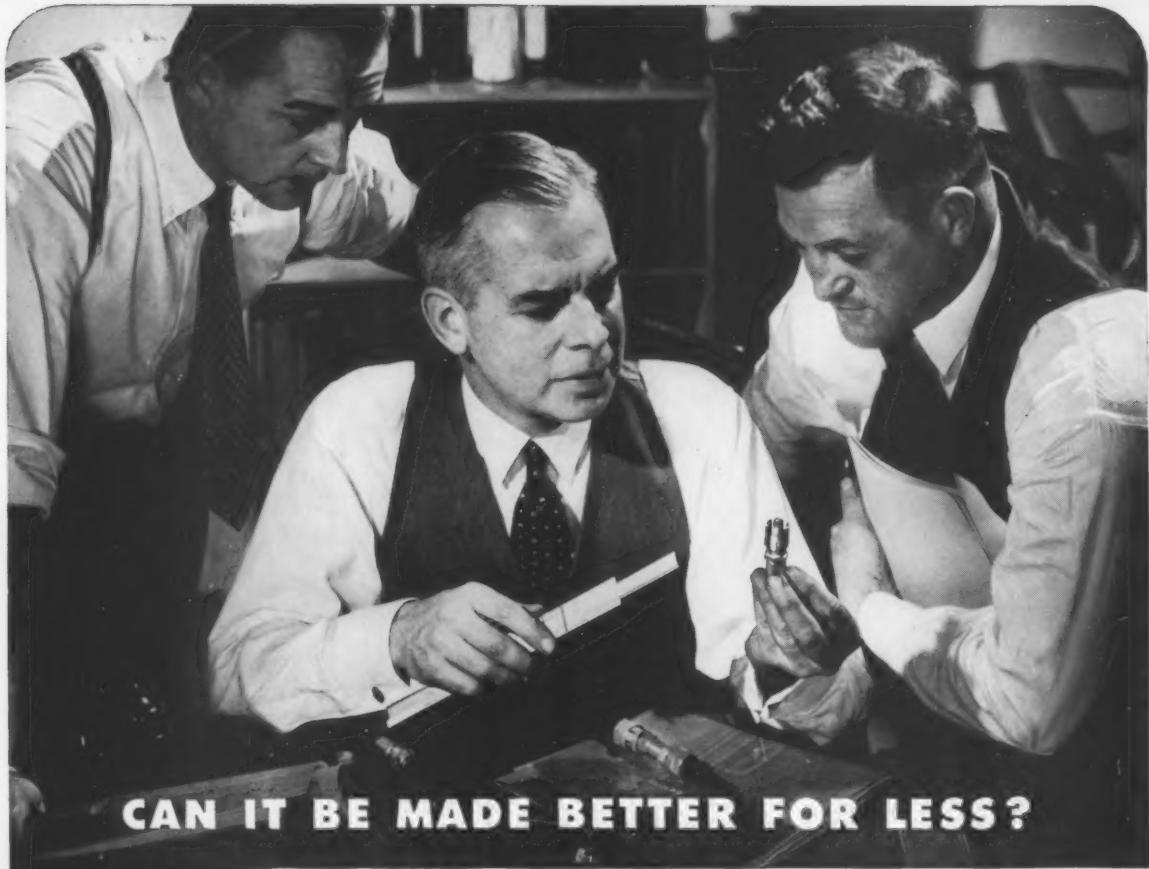
THE *Refrigeration* Industry

INSTALLATION
MAINTENANCE
MERCHANDISING

AIR CONDITIONING
MACHINERY



IN THIS ISSUE: { This is the Way We'll Go to Work!
Your Place in the Home Freezer Future
How to Plan Your Own Store (Part III)



CAN IT BE MADE BETTER FOR LESS?

Weatherhead

Firsts

Solving Problems
for Industry

* ERMETO FITTINGS

* Q-A HOSE END
FITTINGS

* BRAISED STEEL
FITTINGS

* HYDRAULIC BRAKE
LINES AND
BRAKE FITTINGS

* FIRE RESISTANT
HOSE ASSEMBLIES

* THE WEATHERHEAD
SEAL



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Here at Weatherhead we build the parts that go to make up such products. And ever since 1919 the growing number of Weatherhead research, design and production engineers have been creating parts of greater demonstrated uniformity—dependability—efficiency—parts that have become a "must" in many a plant . . . lowered the cost of many a product! They are parts that *work better and still cost less*.

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Of Industry"—
24-page illustrated story of
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Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO
Plants: Cleveland, Columbia City, Ind., Los Angeles
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**NEW LINE
of PAR
CLOSE COUPLED
UNITS**

PAR BY *Lynch*



Now "PAR" Condensing
Units are available in—

- ... $\frac{1}{6}$ and $\frac{1}{4}$ H.P. Domestic Models
- ... $\frac{1}{4}$, $\frac{1}{3}$ and $\frac{1}{2}$ H.P. "Close Coupled" Air Cooled Commercial Models for self contained application
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- ... 1 to 5 H.P. Heavy Duty Water Cooled Commercial Models

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**PAR—Commercial Condensing Unit Line sold
exclusively through Franchised Refrigeration Supply Jobbers!**

.... By Comparison — You'll Buy PAR

PAR
Lynch
DIVISION

Manufacturing Corporation, Defiance, Ohio
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Take your pick!

With such a complete line of Detroit Refrigeration Products to choose from, you can always find just the right valve and control for the job. Ever since 1877 Detroit Products have earned an enviable world-wide reputation. Detroit Refrigeration Products have grown up with the refrigeration industry and have been the accepted standard for many years. And remember—Detroit is the only company offering all three—Expansion Valves, Solenoid Valves and Controls.

For undivided responsibility, trouble-free service and complete satisfaction—specify "Detroit".

Expansion valves



Thermostatic • Automatic • "Dura-fram" • Bellows operated • Complete range of sizes from $\frac{1}{2}$ to 20 tons Freon • Gas or liquid charged • Equalizers on all sizes above 1½ tons • Interchangeable orifices on larger size valves permit accurate sizing on the job • Hermetically sealed power elements.

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Suction Line • Liquid Line • Water • Complete range sizes from 1 to 30 tons Freon • All standard voltages and cycles, A. C. and D. C. • Quiet, hum-free operation • Sturdy and powerful • Easily cleaned in the field.

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Single Pressure • Dual Pressure • Temperature • Dual Temperature and Pressure • Easily adjusted • Visible scales • Switch contact assemblies instantly replaceable in the field without disturbing adjustment.

Detroit refrigeration products are sold by leading Refrigeration Supply Jobbers throughout the Nation.

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"DL" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • Radiator Valves and Balancing Fittings • Arco-Detroit Air and Vent Valves • "Detroit" Expansion Valves and Refrigeration Accessories • Air Filters • Stationary and Locomotive Refrigerators.

THE *Refrigeration* INDUSTRY

VOLUME 2, No. 2

FEBRUARY, 1945

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THE COVER . . . Pipes imbedded in the concrete blocks of Fontana Dam will protect the great reservoir for a future generation. These pipes carry chilled water across the surface of the dam's walls, take away the heat naturally generated in the mass when the concrete is poured. See story on page 45. (Photo from York Corp.)

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UNIT

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UNIT 1115

EVERY ROTARY SEAL REPLACEMENT UNIT HAS ITS OWN INSTRUCTION SHEET WITH AN ILLUSTRATION AND A DETAILED EXPLANATION OF THE INSTALLATION PROCEDURE . . .

Make of Compressor	Shaft Size	Stock No.	List Price	Make of Compressor	Shaft Size	Stock No.	List Price
ABSOPURE 11/16" 3280 \$3.70 For all compressors using threaded cap. Models: A5, A6, A9, A16, 1/6, 1/4 H.P.				CARRIER 1" 9158 \$9.40 6 Bolt Holes. Diameter Bolt Circle 3-1/2". Models: 7K3, 7K4, 7F3, 1935, 1941.	1"	9158	\$9.40
ABSOPURE 7/8" 6278 6.60 For all compressors using threaded cap. Models: IA, IM, IW, JA, JM, JW, 3/4 H.P. to 1-1/2 H.P.				CARRIER 1-1/2" 14159 14.30 8 Bolt Holes. Diameter Bolt Circle 4-1/4". Models: 7F5, 7H5, 7G5, 1935, 1941.	1-1/2"	14159	14.30
APEX 5/8" 3230 3.70 4 Bolt Holes. Diam. Bolt Hole Circle 2-1/2". Single and Twin Cylinder.				CARRIER 2-3/8" 22180 22.50 6 Bolt Holes. Diameter Bolt Circle 5-3/4". Models: 7G8 1935, 1941.	2-3/8"	22180	22.50
ATWATER KENT 9/16" 2336 2.90 4 Bolt Holes. Diam. Bolt Hole Circle 2-1/16". Replaces Diaphragm Seal.				CHIEFTAIN 21/32" 2220 2.90 5 and 6 Bolt Holes. Diam. Bolt Hole Circle 2-5/8". Models: Prior to 1937. Schaefer Ice Cream Cabinet.	21/32"	2220	2.90
BAKER 3/4" 3405 3.70 6 Bolt Holes. Diameter Bolt Hole Circle 2-3/8". Models: B, I H.P.				CHIEFTAIN 21/32" 2227 2.90 21/32" at flywheel, undercut to 5/8" in seal chamber. Models: All Models Beginning 1937. Pelco Water Cooler.	21/32"	2227	2.90
BAKER 7/8" 6407 6.60 5 Bolt Holes. Diameter Bolt Hole Circle 3". Models: 32AA.				COLDSPOT . Models: 1933, 1934 13/32" 3401 3.70	13/32"	3401	3.70
BAKER 1-1/8" 9408 9.40 4 Bolts. Diam. Bolt Hole Circle 3-1/4". Models: F32BA. Replaces bellows seal.				COLDSPOT . Models: After 1934 15/32" 3400 3.70	15/32"	3400	3.70
BAKER 1-7/16" 17408 17.00 6 Bolt Holes. Diameter Bolt Hole Circle 3-3/4". Models: 40AA Serial 13L.				COPELAND 5/8" 2190 2.90 6 Bolt Holes. Diam. Bolt Hole Circle 2-3/8". Models: A, A5, A-1L, AM, AM200, B, BB, C, CZ, D, E, EL, EZ, F, G, H, I, IA, IC, IC-2, IC-3, IC-4, IL, L, LB, M, MW, N, N-5, O, P, PW, Q, OG, QW, QW-2, Q-2, Q252B, Q252C, R, RG, RW, RW516B, SA, 1, 2, 2L, 2L, 215, 215A. Single cylinder compressors: 125-A, 320-A, 7032, 7612, 7776, 8631. Small twin cylinder compressors: 930-A, 7251, 7616.	5/8"	2190	2.90
BAKER 2-1/4" 22411 22.50 8 Bolt Holes. Diameter Bolt Circle 5". Models: F1SBA.				COPELAND 13/16" 4191 4.50 6 Bolt Holes. Diam. Bolt Hole Circle 2-3/8". Models: 19.	13/16"	4191	4.50
BRUNNER 11/16" 2370 2.90 Single Cylinder—Using threaded cap. Models: A25, A33, A50, W50, 1/4, 1/3, 1/2 H.P.				CORDLEY-HAYES 5/8" 2334 2.90 4 Bolt Holes. Diam. Bolt Hole Circle 2-1/8". Models: 1200, 1200A.	5/8"	2334	2.90
BRUNNER 11/16" 2372 2.90 Twin Cylinder—Using threaded cap. Models: A25, A33, A50, W50, 1/4, 1/3, 1/2 H.P.				CROSLEY 1/2" 2292 2.90 4 Bolt Holes. Diam. Bolt Hole Circle 2-5/8".	1/2"	2292	2.90
BRUNNER 11/16" 2373 2.90 6 Bolt Holes. Diam. Bolt Hole Circle either 2-3/8", 2-9/16", or 2-5/8". Models: A140, S140, R330.				CROSLEY 1/2" 2295 2.90 5 Bolt Holes. Diam. Bolt Hole Circle 2-5/8".	1/2"	2295	2.90
BRUNNER 7/8" 4389 4.50 6 Bolt Holes. Diameter Bolt Hole Circle 3". Models: R500, Seal space 1-1/2".				CURTIS 652" 2287 2.90 Models: 1/6, 1/4, 1/3, H.P., Single cylinder 1-1/2"x1-1/2", MAR-16-0 (1935), MAR-16-B (1934), SAR-16-B (1934) & (1933). Double cylinder 1-1/2"x1-1/2", MAR-33-R, MAR-33-R (1936), MWL-33-R, MWR-33-R (1936), MAR-33-R (1935). Double cylinder 1-1/2"x1-1/4", MAR-25-R (1936), MAR-25-R (1936) & (1935).	652"	2287	2.90
BRUNNER 7/8" 4388 4.50 6 Bolt Holes. Diameter Bolt Hole Circle 3". Models: 1/2 H.P., A55FL, W55FL, A55SL, W55SL, 1937-1940. Seal space 1-1/8".				CURTIS 780" 5386 5.30 Shaft .780" at flywheel, undercut to 3/4" in seal chamber. Models: MAL50R, MAL75R, MAR50R, MAR75R, MWL50R, MWL75R, MWR50R, MWR75R, 1/2, 9/4 H.P.	780"	5386	5.30
BRUNNER 1-1/8" 9375 6.60 For all compressors using threaded cap. Models: W150, A150, W200, A200, 1-1/2, 2 H.P. R-2000 Series.				CURTIS 1" 6288 6.60 8 Bolt Holes. Diam. Bolt Hole Circle 3-1/4". Models: 2-1/8"x2-1/2", 2-1/2"x2-1/2" up to 1935, MAR100, MAR150, 1, 1-1/2 H.P.	1"	6288	6.60
BRUNNER 1-1/8" 9376 6.60 6 Bolt Holes. Diam. Bolt Hole Circle 4". Models: 3/4, 1 H.P., A75, R650.				CURTIS 1-1/16" 9291 9.40 6 Bolt Holes. Diam. Bolt Hole Circle 3-5/8". Models: 1939 1 & 1-1/2 H.P. MAL-100-R.	1-1/16"	9291	9.40
BRUNNER 1-1/4" 8377 6.60 6 Bolt Holes. Diameter Bolt Circle 4". Models: 650, 2000, 5000, 5301.				CURTIS 1-1/2" 9284 9.40 8 Bolts. Diam. Bolt Hole Circle 4-1/2".	1-1/2"	9284	9.40
BRUNNER 2" 22378 22.50 6 Bolt Holes. Diameter Bolt Circle 6". Models: R10000, R20000.				DAYTON 1/2" 2182 2.90 For compressors using threaded cap. Replaces diaphragm seal.	1/2"	2182	2.90
BUCKEYE 5/8" 3235 3.70 5 Bolt Holes. Diam. Bolt Hole Circle 2-1/2". Models: 44, 53, 71, 600, 800.				DAYTON 5/8" 3180 3.70 5 Bolt Holes. Diam. Bolt Hole Circle 2-1/2". Models: 71.	5/8"	3180	3.70
CARRIER 5/8" 2156 2.90 6 Bolt Holes. Diameter Bolt Circle 2-3/8". Models: 7J1 1940, 1941.				DAYTON 5/8" 3185 3.70 5 Bolt Holes. Diam. Bolt Hole Circle 2-5/8". Bolt Holes countersunk.	5/8"	3185	3.70
CARRIER 3/4" 3176 3.70 6 Bolt Holes. Diam. Bolt Hole Circle 3". Models: 7-F1, 7-F0, 7-F2, 7-H1, 5000, 5001, 5002.				FAIRBANKS MORSE 5/8" 1115 1.90 6 Bolt Holes. Diam. Bolt Hole Circle 2-3/4". Models: B.	5/8"	1115	1.90
CARRIER 3/4" 3177 3.70 6 Bolt Holes. Diam. Bolt Hole Circle 3-1/4". Models: 50D, SOF, 5400, 5500, 7H1 and 7L.				FAIRBANKS MORSE 21/32" 2220 2.90 6 Bolt Holes. Diam. Bolt Hole Circle 2-5/8". Models: All models except model B.	21/32"	2220	2.90
CARRIER 7/8" 4157 4.50 6 Bolt Holes. Diameter Bolt Circle 3-1/4". Models: 7G2 1940, 1941.							
CARRIER 1" 6178 6.60 6 Bolt Holes. Diam. Bolt Hole Circle 3-5/16". Models: 7F3.							
CARRIER 1" 6179 6.60 6 Bolt Holes. Diam. Bolt Hole Circle 3-5/16". Models: 7F4.							



ROTARY SEAL COMPANY

2020 North Larrabee St.

Chicago 14, Ill.



Anaconda Copper Tubes are easier to handle. The special Cup Seal* assures unflattened tube ends that can be fed through smaller openings without danger of fouling inside surfaces. This method of sealing also keeps the interiors of the tubes clean, bright and dry. Before sealing, tubes are thoroughly dehydrated.

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Anaconda Copper Refrigeration Tubes are available in all standard sizes up to and including $\frac{3}{4}$ " O.D. They are stocked by jobbers in 25, 50 and 100-foot coils. Longer lengths on special order.

*Pat. App. For



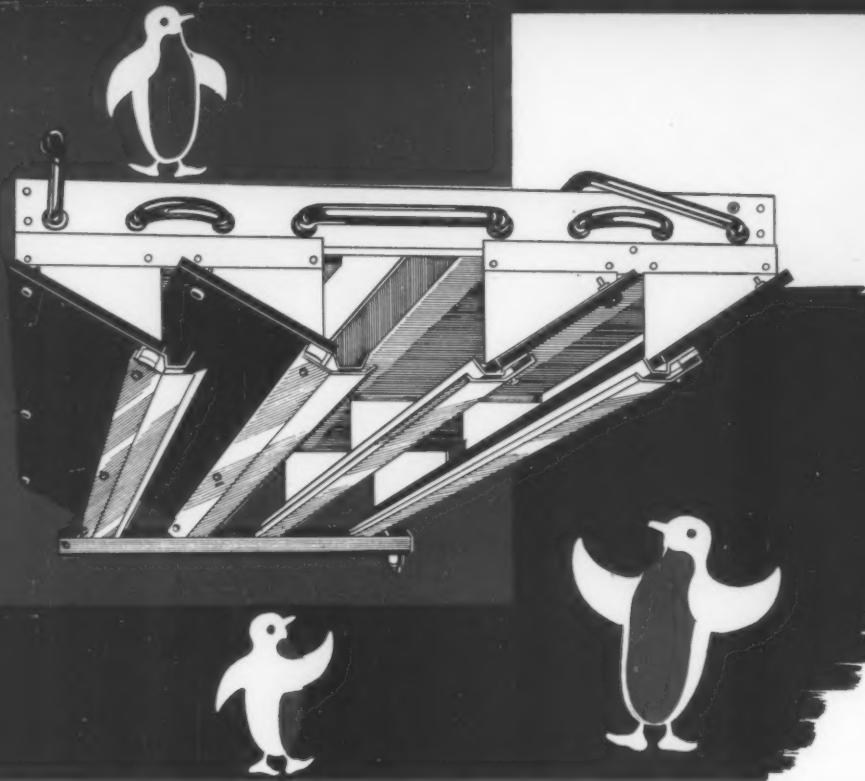
Anaconda Refrigeration Tubes

FRENCH SMALL TUBE BRANCH—THE AMERICAN BRASS COMPANY

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In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ont.

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WAR BONDS...BUY ALL YOU CAN KEEP ALL YOU BUY!



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A noteworthy contribution by BUSH to the refrigeration industry, the BUSH PLASTI-COOLER combines the efficiency of the famed Bush Finned Coil with the proved advantages of sturdy plastics . . . the original application of plastics to the low side field. Coil features aluminum fins spaced $1/3"$ — $1/2"$ — $3/4"$ and copper tubing ($5/8"$ to 100 lin. feet — $1/4"$ over

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BUSH

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USE A "Y" STRAINER

for Large Capacity
and Long Service

Due to its features of design the Henry "Y" Strainer not only gives complete protection to condensing unit and control equipment against scale and foreign matter that may be present in the system, but it also permits easy servicing with a minimum of interruption to plant operation.

The Henry "Y" Strainer, like other Henry products, has become the choice of the Army, Navy, Maritime Commission and those who serve the refrigeration and air conditioning industry in time of peace as well as in time of war.

7 Reasons Why You'll Like It Best!

- 1 Light in weight — due to its tubular construction.
- 2 The strainer screen can be easily and quickly cleaned without removing the strainer from the line.
- 3 "Wave-Flow" design results in negligible pressure drop.
- 4 Cleaning seldom necessary because of large screen area.
- 5 Internal baffle prevents injury to the heavily reinforced monel screen. In this connection it is well to remember that suction velocities may exceed 5,000 feet per minute.
- 6 Patented forged steel clean-out flange is distortion-proof, making a tongue and groove anchored-gasket joint with strainer body.
- 7 Strainer is of welded steel construction. Rustproofed. Available with copper sockets for O.D. tubing and steel F.P.T. connections for iron pipe.

Available in $\frac{5}{8}$ " to $3\frac{1}{2}$ " O.D.S. sizes and in 1" to 3" F.P.T. sizes with screen area ranging from 23 to 175 square inches.

FOR SUCTION OR LIQUID LINES



The Henry "Y" Strainer when used in suction line service will not trap oil if the strainer is installed on its side as shown. 50-mesh screen is recommended for suction lines.



For liquid line service the Henry "Y" Strainer can be installed either in a horizontal or vertical position. 100-mesh screen is recommended for liquid lines.

Why the Patented Henry Flange Is Distortion Proof



Strains due to uneven or excessive tightening of bolts are absorbed in the recessed area (A) and cannot be transferred to the flange. Gasket face (B) makes up of the inner flange rim and the strainer housing to which the flange is welded. Lip on outer flange rim (C) acts as a "stop" to prevent excessive drawing up of bolts. Gasket is located in recessed area (D). Flange makes tongue and groove anchored-gasket joint with strainer.

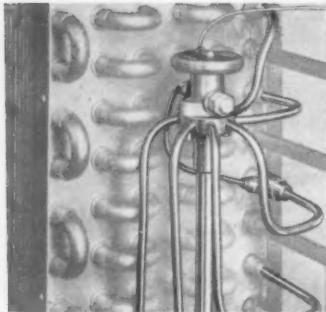
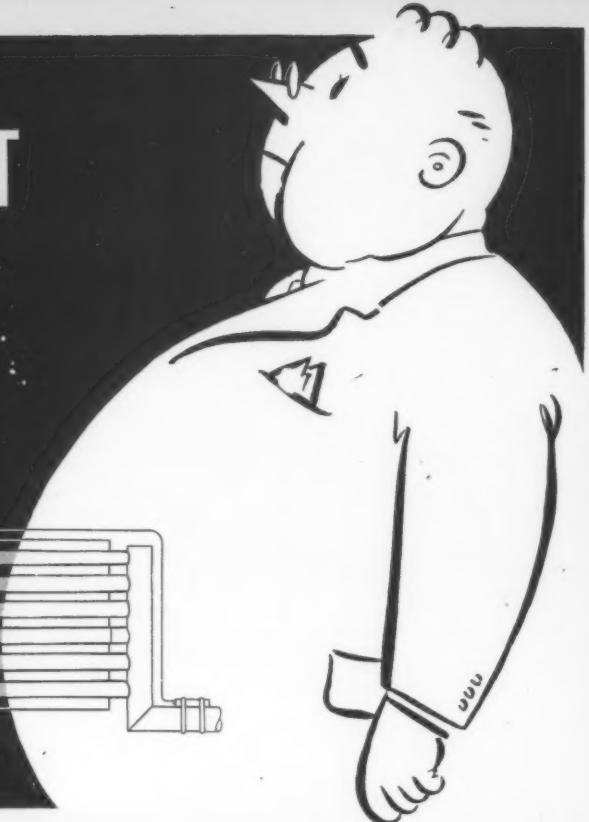
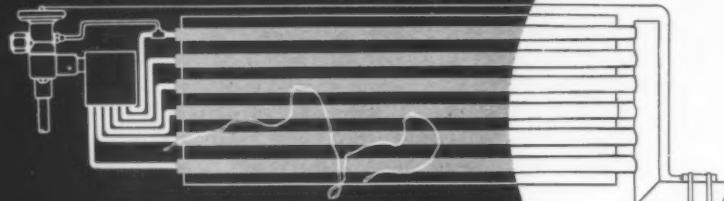
HENRY VALVE Company

3260 West Grand Ave.
Chicago 51, Illinois

SOLD BY LEADING
JOBBERS EVERYWHERE

PACKLESS AND PACKED VALVES • STRAINERS • DRYERS FOR REFRIGERATION AND AIR CONDITIONING
AMMONIA VALVES • FORGED STEEL VALVES AND FITTINGS FOR OIL, STEAM AND OTHER FLUIDS

REDUCE THAT WASTE LINE



The Alco Multi-Outlet Thermo Valve shown above is a typical installation. Note efficient arrangement of outlet lines from valve to evaporator circuits.



843 Kingsland Avenue, St. Louis 5, Mo.

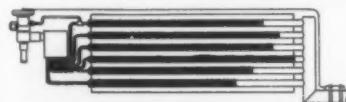
Designers and Manufacturers of Thermo-static Expansion Valves; Pressure Regulating Valves; Solenoid Valves; Float Valves.

Keep Refrigeration Systems In Shape To Do An Important Wartime Job

Here's a weapon to use in the fight against waste in refrigeration. It's the Alco Multi-Outlet Thermo Valve—a combination expansion valve and distributor that keeps all coil surface working by insuring even distribution of the refrigerant to all coil circuits.

Savings with a multi-outlet thermo valve begin with installation costs because it eliminates the need for oversize coils or liquid headers.

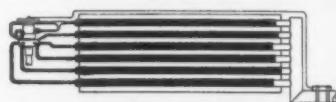
Operating costs are cut, too, for refrigerant is fed equally to each of the evaporator circuits, regardless of fluctuations in the load. There is no "starving" or "flooding." This



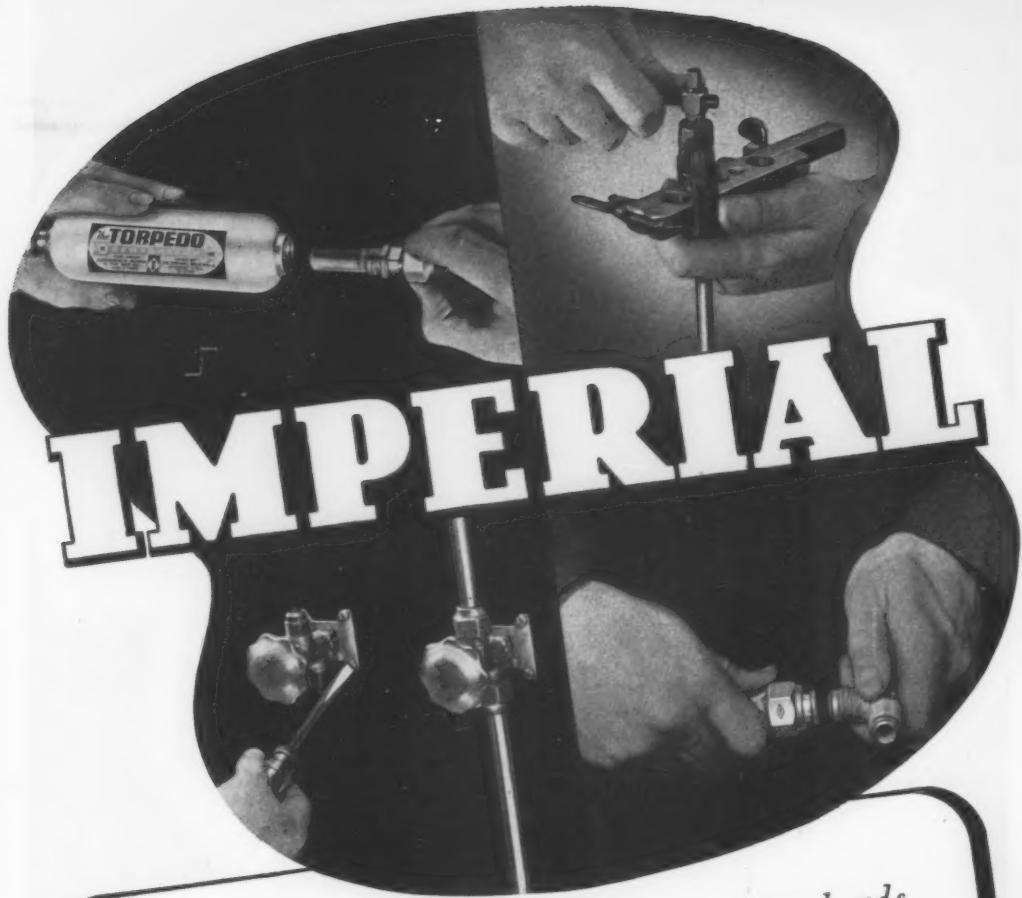
This diagram shows poor distribution. Only part of the coil is properly fed. The working portions of the coil are shown in black. "Loafing" parts of the coil are shown in white.

efficient use of *all* coil surface reduces the running time and lengthens the "off" cycle.

The Alco Multi-Outlet Thermo Valve is part of the complete line of Alco engineered refrigerant controls that has been used aboard ships for many years by the U. S. Navy and Maritime Commission, and now, of course, in much larger quantities. Small allocations of these same valves are made each month for urgent civilian priorities. For details on applications and availability of this control, see your Alco jobber, Alco Valve Company, 843 Kingsland, St. Louis, 5, Missouri.



This is the same coil, fed by a Multi-Outlet Thermo Valve. Most of the coil is now doing real work. These valves increase coil capacity up to 25%.



Quality Products that are helping busy wartime hands
keep America's refrigeration and air conditioning
systems operating . . . Fittings, Valves, Dehydrators,
Tube Working Tools and Service Specialties.

THE IMPERIAL BRASS MFG. COMPANY
536 South Racine Avenue, Chicago 7, Illinois





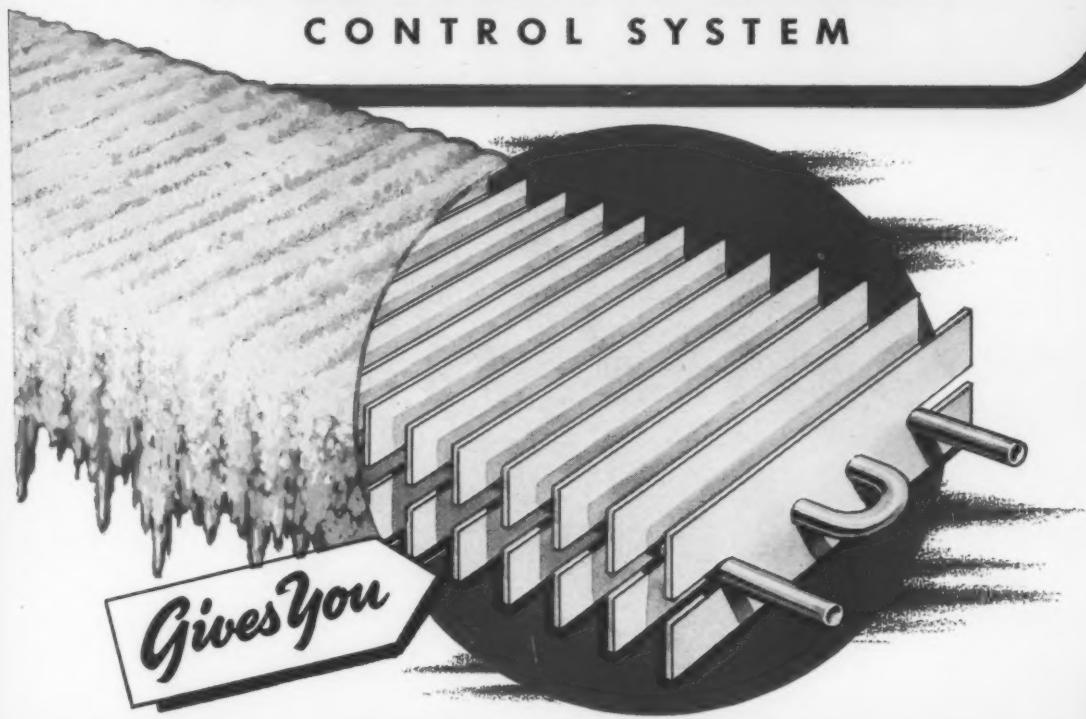
If you've never handled the Mills Compressor—get one.

See if you ever had, or could have anything better. In performance it will take a beating!

MILLS INDUSTRIES, INCORPORATED

4100 Fullerton Avenue • Chicago 39, Illinois

HONEYWELL POLARTRON CONTROL SYSTEM



FROST-FREE REFRIGERATION

- ACCURATE TEMPERATURE CONTROL
- MORE UNIFORM HUMIDITY
- GREATER OPERATING ECONOMY

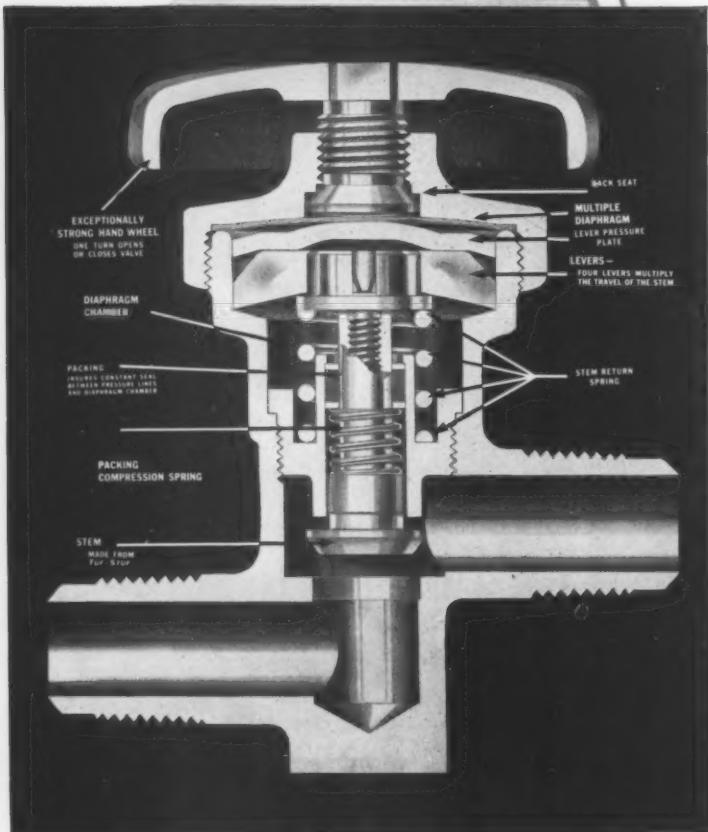
Arrange, without obligation, to have a Honeywell engineer explain the exact benefits the Polartron Control System can bring you. Just write Minneapolis-Honeywell Regulator Company, 2909 Fourth Ave. S., Minneapolis 8, Minn. Branches and distributing offices in all principal cities.

THE POLARTRON
SYSTEM OF
FROST-FREE
REFRIGERATION



Increased...

**DIAPHRAGM LIFE PROLONGS
THE SERVICE LIFE OF THE VALVE**



Because of the small amount of movement, the multiple diaphragm in our TRIPL-SEAL Valve is never deflected past its normal center; thus immeasurably prolonging both its life and the life of the valve in service.

The multiple diaphragm has approximately 20% increased surface area over more conventional types of diaphragms. A single turn only is necessary to open or close the TRIPL-SEAL Valve.

TRIPL-SEAL

Positive sealing at three essential points in the valve is adequately provided for—the back seat with valve in open position,—the multiple diaphragms,—and a packing around the stem. (This packing insures constant seal between pressure lines and diaphragm chamber.)

The stem of the TRIPL-SEAL Valve is provided with a sixty degree bevel, thus procuring the most desirable wedging action for positive and easy closing. It is manufactured from Tuf-Stuf, a strong, corrosion-resistant alloy.

The stem does not rotate, and is constantly guided into the same position against the seat by a cylindrical guide, so processed as to eliminate any possibility of distortion.

The body and cap of the valve are forged brass to eliminate seepage and to withstand frost action; mounting lugs are forged integrally with the body to provide the ultimate in mounting strength.

The hand-wheel is exceptionally strong, and is so designed that it provides a convenient grip for manual operation.

Valves are furnished in two-way, three-way, and angle type—flared or solder type ends—and in complete range of all necessary sizes.

Order through your jobber.

MUELLER BRASS CO.
PORT HURON, MICHIGAN

ORDER THROUGH YOUR JOBBER... ONE SOURCE OF SUPPLY... SAVES YOU TIME AND MONEY

PARTS

FOR EVERY PART of the United States!

These AUTHORIZED JOBBERS of Genuine UNIVERSAL COOLER PARTS are strategically located to give you prompt delivery on repair and replacement parts...parts built with the same precision that characterizes Universal Cooler original equipment



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AUTO SERVICE CO.
1916 Fourth Ave.
Birmingham

MOBILE REFRIG. SUP.
10 Dauphin St.
Mobile

ARIZONA

J. CARL WHITE CO.
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Phoenix

CALIFORNIA

REFRIG. SERVICE INC.
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Los Angeles 4

CALIFORNIA REFRIG. CO.
441 23rd St.
Oakland

HINSHAW SUPPLY CO.
1316 J Street
Sacramento

WRIGHT REFRIG. SERV.
1337 India St.
San Diego

CALIFORNIA REFRIG. CO.
1077 Mission St.
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CYCLOPS IRON WORKS
837 Folsom St.
San Francisco

COLORADO

MCCOMBS REFRIG. SUP.
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CONNECTICUT

MARSDEN & WASSERMAN, Inc.
44 Hicks St.
Hartford

Dist. of COLUMBIA

REFRIGERATION SUP. CO.
1612 14th St., N.W.
Washington 9

FLORIDA

BOWEN REFRIG. SUP. INC.
917 W. Bay St.
Jacksonville

BOWEN REFRIG. SUP. INC.
1123 Florida Ave.
Tampa

BERNER-PEASE, INC.
1940 N. E. Second St.
Miami 37

GEORGIA

GRAVES' REFRIGERATOR
311 Peachtree St., N.E.
Atlanta

BOWEN REFRIG. SUP. INC.
323 Spring St., N.W.
Atlanta 3

ILLINOIS

AUTOMATIC HTG. & COOL. SUP.
647 W. Lake St., Chicago

SPRINGFIELD REFRIG. SUP.
223 E. Adams St.
Springfield

INDIANA

F. H. LANGSENKAMP CO.
229 E. South St.
Indianapolis

F. H. LANGSENKAMP CO.
143 E. LaSalle St.
South Bend

IOWA

REPUBLIC ELECT. CO.
114 E. Front St.
Davenport

DENNIS REFRIG. SUP.
1911 Ingalls Ave.
Des Moines

KENTUCKY

GEO. DEHLER, Jr., & CO.
402 E. Market St.
Louisville

LOUISIANA

ENOCHS SALES CO.
705 Camp St.
New Orleans 12

MAINE

BALLARD OIL & EQUIP. CO.
353 Cumberland Ave.
Portland

MARYLAND

PARKS & HULL APP. CORP.
1029 Cathedral St.
Baltimore

MASSACHUSETTS

APPLIANCE ENG. CORP.
701 Beacon St.
Boston

MICHIGAN

J. M. OBERC, INC.
904 W. Baltimore Ave.
Detroit

LIFSEY DIST. CO.
730 N. Saginaw St.
Flint

J. GEO. FISCHER & SONS
Looper at Second
Saginaw

MINNESOTA

VINCENT BRASS & COPPER
100 N. Second St.
Minneapolis

THERMAL CO., INC.
2448 University Ave.
St. Paul 4

MISSOURI

FORSLUND PUMP & MACH.
1717 Main St.
Kansas City 8

BRASS & COPPER SALES CO.
2817 Laclede Ave.
St. Louis

HOFFMAN SUP. CO.
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Springfield

NEBRASKA

WICKHAM SUPPLY CO.
1512 N Street
Lincoln

RUEGG REFRIG. SUP.
207 N. Sixteenth St.
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NEW JERSEY

T. W. BINDER CO.
29 S. Orange St.
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NEW YORK

W. A. CASE & SON MFG. CO.

1 Lewis St.
Binghamton

ROOT, NEAL & CO.

64 Peabody St.
Buffalo 10

LAW & CO.

410 Walnut St.
Elmira

PARAMOUNT ELECT. SUP. CO.

443 Warren St.
New York City 7

MURRAY SUPPLY CO.

834 State St.
Schenectady

CENTRAL SERV. SUP. CO.

516 Erie Blvd., E.
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2222 Arch St.
Philadelphia 3

JOS. WOODWELL CO.

Bldv. of Allies & Wood Sts.
Pittsburgh 22

LARSON SUPPLY CO.

326 Buttonwood St.
Reading

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Chattanooga

LEINART ENG. CO.

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Knoxville 5

UNITED REFRIG. SUP. CO.

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STARR CO.

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Nashville

TEXAS

THE ELECTROMOTIVE CORP.

3209 Commerce St.
Dallas

HAYS ELECTRIC SERV.

403 Montana St.
El Paso

MCKINLEY REFRIG. SUP.

1012 Jennings at 12th
 Ft. Worth

STANDARD BRASS & MFG. CO.

2018 Franklin St.
Houston

UNITED REFRIG. CO.

112 Martinez
San Antonio 6

VIRGINIA

REFRIGERATION SUP. CO.

214 W. Broad St.
Richmond

WASHINGTON

APPLIANCE PARTS &

SERVICE CO.

214 Stewart St.
Seattle

OKLAHOMA

MACKLANBURG SUP. CO., INC.

109 N. W. 23rd St.

Oklahoma City

MACH. TOOL & SUP. CO.

215 E. First St.

Tulsa

OREGON

JACOBS & GILE, INC.

1900 S. E. Grand Ave.

Portland

PENNSYLVANIA

LARSON SUPPLY CO.

25 N. 10th St.

Allentown

WEST VIRGINIA

AIR-COND. & REFRIG. SUP. INC.

Broad & Piedmont

Charleston

WISCONSIN

TERMAL CO., INC.

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Milwaukee

HAWAII

REFRIG. SERV. & SUP. CO.

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BUY
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AND KEEP THE
BONDS YOU BUY

UNIVERSAL COOLER

WE SELL TO MANUFACTURERS ONLY

UNIVERSAL COOLER CORPORATION • Automatic Refrigeration since 1922

MARION, OHIO • BRANTFORD, ONTARIO

new PENN water valve turns ...



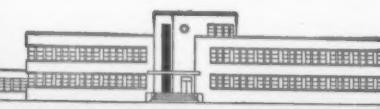
Thumbs down on sticking seats!

Thumbs down on rusty range springs!

In its new Series 246 Water Regulator, PENN has banished these troubles for good. How? By keeping water right where it belongs—away from sliding parts. Thus there's no sedimentation, no corrosion or rust to mar their smooth performance. Premature wear is avoided ... and dependability assured.

The PENN 246 is extremely sensitive to changes in refrigerant head pressure . . . yet free from water hammer, too! It's available in two styles—flanged and threaded—and in a wide capacity range. Ask for the full information awaiting you in your free copy of Bulletin R-1986. Write Penn Electric Switch Co., Goshen, Ind. Export Division: 13 E. 40th Street, New York 16, U.S.A. In Canada: Powerlite Devices, Ltd., Toronto, Ont.

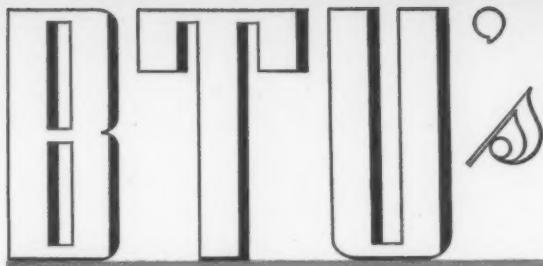
PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

THE REFRIGERATION INDUSTRY



News • Laws • Trends

• YOU AND THE DRAFT

REFRIGERATION industry operators will be wise to re-examine their lists of deferred employees and plan for the future, in the light of the tightened civilian economy.

Chances are that they'll lose nearly all of the 26-30 age group and a good percentage of the 30-38 age group in the next six months. Draft calls, according to present indications, will be substantially increased during this period.

WMC has revised priority ratings of practically all essential and locally needed activities, especially in No. 1 labor areas, to establish all USES labor referral programs on the same national level. Service and repair activities, heretofore in the number 4 or 5 band (essential or locally needed), are, in general, being assigned a number 6 rating (less essential activities).

The practice of hiring men—or women—of any age without referral from USES may forfeit the right to labor priority treatment. The only persons who may be hired without referral are veterans of this war and workers employed less than 30 hours weekly.

Men classified 4-F because of minor physical impairments will be re-examined, and many will be channeled into military service; the armed forces are now willing to accept a quota of physically disabled men. This will be especially true in cases where essential and locally needed employers have not requested deferment of their 4-F workers.

• WAIT 'TIL V-E DAY

IT is unlikely that production of mechanical household refrigerators will be resumed until victory in Europe is achieved, WPB said in a year-end statement on the 1945 outlook for civilian goods production.

There are now about 45,000 refrigerators in the stockpile from which withdrawals must be made for only the most essential needs.

• CEILING ZERO

FOLLOWING the recent statement by War Mobilization boss Byrnes on manpower ceilings, WPB has issued Priorities Regulation 26, putting teeth into WMC's employment ceilings and hiring regulations.

The regulation authorizes withdrawal or modification of material priorities or allocations when it is determined that materials or facilities are not being used most effectively as a result of failure to follow war manpower programs. If WPB decides that WMC ceilings or regulations

are not being met, all priorities and allocations—even those already granted—may be withdrawn.

• MOTORS CAN BE HAD

WPB has announced that several thousand fractional horse-power motors will be shipped each month for civilian replacement use and for essential farm requirements.

Refrigerator repair men who need fractional motors for replacement purposes should use the AA-3 preference rating they are permitted under CMP-9A in placing orders with their suppliers.

If the repair man's supplier has fractional motors in stock he is required to fill orders carrying the AA-3 rating unless he has higher rated orders, if the buyer meets his regularly established prices and terms of sale.

Repair men also were advised by WPB to shop around for suppliers who can fill their orders, and to urge suppliers to file an application with WPB each month for allocation of small motors.

Suppliers are not permitted to demand an old motor in exchange for a new one as part of the purchase price on orders with AA-3 ratings. To keep an adequate stock, suppliers are advised to file a WPB-547 each month for a month's requirements, instead of ordering at irregular intervals. This method will assure equitable distribution, WPB hopes.

• DISPLAY CASE PROGRAM

SOME authorizations in connection with WPB's display case program have been issued. The exact figure has not been announced, but the balance of the authorization will probably be made soon. Requests exceeded the 8000 maximum set up for the program, so they will be scaled down so that all will come within the limit. Already authorized are: Fleetwood, Fowler, F. A. Atherton, Royal Store Fixture, Jordan, Percival, McCray, Hill, Firedrich, Koch, Tyler, Grand Refrigerator, East Bay Fixture Co., and Matthews.

• FREON EASEMENT

YOU can expect within the next few weeks (perhaps by the time this note appears) a relaxation in Order M-28, governing the use of Freon-12. WPB's refrigeration section indicates that the reduced allocation of anhydrous hydrofluoric acid will have little effect on the supply picture, and plans to relax on the use of F-12 are going ahead according to schedule.

• ROUND-UP ON RULINGS

MANUFACTURE and sale of wrench sets for inventory and shelf stocks of producers and distributors are permitted through an amendment to Order L-216 . . . Prior to this, most wrench sets were produced and delivered only to fill specific orders placed by ultimate consumers . . .

WPB's compliance division has barred Hotel Edison, New York City, from making any alteration or engaging in construction work over \$100, until 1946 . . . the penalty was ordered because the hotel violated WPB regulations when it installed an \$18,000 air conditioning system. . .

Temporarily, plans for scheduling of deliveries of critical refrigeration items (equipment for shipboard and

Continued on page 33

Unless you cost your jobs carefully, they'll cost you—plenty. Here's a simple plan it'll pay you to follow



SELL Your Service at a PROFIT

ONE reason why many refrigeration men have never earned maximum profits on service is that they cost service sales the same as merchandise. Many dealers profit substantially on merchandise, when there is merchandise to sell, but lose on service because they either fail to cost service separately from merchandise or try to cost it the same as merchandise.

When you sell a piece of equipment, you don't figure its cost, the overhead allotted to the sale, and the net profit before setting the selling price. That has been set in advance. Neither do you record the time spent making the sale and other pertinent data, filing this information for future use in cost analysis. But you should follow such a routine when costing service sales.

Selling prices on services are costed in two ways:

1:—Each sale estimated individually for labor, materials, overhead and net profit.

2:—Each sale a flat price transaction, no coating required beforehand to set the selling price.

The basic difference between costing merchandise and costing service is the necessity in the former case of keeping experience figures apart from the financial accounts showing income and outgo. When you cost merchandise sales, you set the price in advance by figuring invoice cost and the margin covering overhead as shown by your books and the desired net profit.

You may lose money if you follow this same procedure in costing serv-

By Fred Merish

ice sales. You must build up a backlog of experience figures apart from your financial records to do a dependable costing job on service work. There are two divisions of accounting: the financial division, recording income and outgo, and the costing division, recording the costs of each line or department.

In some cases, the cost records are combined with the financial accounts; in other cases, they are kept separate.

ly and compared periodically to note differences. Refrigeration men will find it effective to cost service jobs separately. This simple system shows how:

Forms 1 and 2 are the recording instruments that will help you earn service profits. Form 1 is a *service record sheet* to be filled out on each job. Compute costs after the job is completed and the service man fills in particulars. This form serves four purposes: order sheet, work sheet for

Continued on page 46

FORM 1: JOB SERVICE RECORD SHEET

Name _____ Address _____ Job No. _____
Phone _____

Service wanted
.....
.....

Cash \$.... Charge \$.... Cont.... FSG.... NC....
Description of work done
.....
.....
.....

Materials used Returned Cost
.....
.....
.....

Labor hours—From..... To..... Rate.....

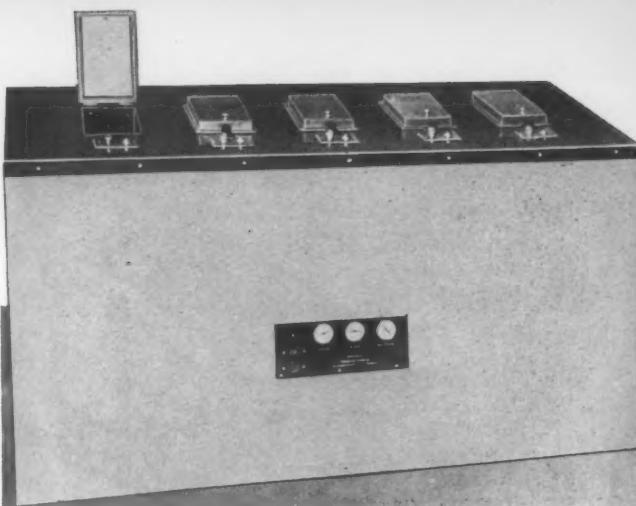
Mileage—From..... To..... Cost \$.....

Miscellaneous expense

Date..... Signed.....
(Serviceman)

Five separate temperatures are maintained in this cloud and pour test cabinet built by Refrigeration Systems, Inc., Chicago, for use by the Armour Research Institute.

Describing the construction and operation of a five-temperature cabinet built for research use in testing lubricating oils



ENGINEERING a CLOUD and POUR TEST CABINET

IN RESPONSE to a request by the Armour Research Foundation of Chicago for a cloud and pour test cabinet of large capacity, Refrigeration Systems, Inc., commercial refrigeration and air conditioning engineering firm of which Joseph H. Lazar is president, designed and manufactured in record time a unit capable of satisfying a rather complex set of conditions.

In making pour point determination on internal combustion engine lubricating oils according to a newly-developed procedure, temperatures as low as minus 65°F. must be readily attainable. In addition, during test runs compartments at various other

temperatures in this low range must be available, and provision for close temperature control for any given thermostatic setting must be made.

Because of the great number of different oils that must necessarily undergo this test simultaneously, a cabinet was designed with five separate compartments, each with eight wet sleeves in which sample bottles are placed, and each with its own temperature control system so that temperatures can be set independently.

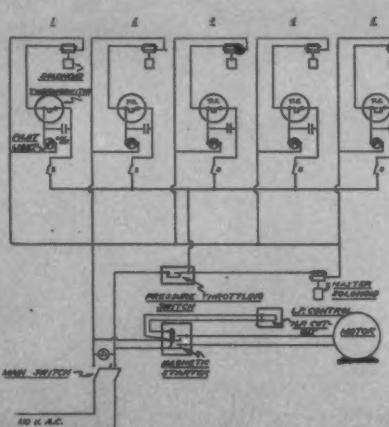
Each compartment has a generously sized evaporator coil lining its inner wall, resulting in a 3°F. temperature difference between the re-

frigerant and the chloroform in the compartment. Chloroform is used as the heat transfer medium, rather than alcohol or other liquids, because of its non-inflammability.

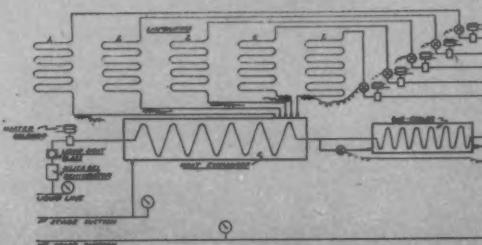
The design of the cabinet is such that the compartments are readily adaptable to dry compartment operation for any other type of low temperature test that might present itself.

Probably the most important single feature is the ability to set any compartment at any temperature from room temperature to minus 75°F. without affecting the other compartments. The compartments are well

Continued on page 54



Schematic drawing of the refrigeration circuit used in the cloud and pour test cabinet is shown below. At left is a diagram of the electrical arrangement of the system.



This is the way WE'LL GO TO WORK!

Through its war-time service, this dealership has its post-war prospect list all "shined up" and ready for sales action

WAR hasn't interrupted the sales activities of Mathis Refrigerator Sales and Service, Peoria, Ill. It's only swung them over into another channel, one that will definitely swell the stream of new refrigerator business when production is resumed. With no new refrigerators to merchandise, the company intensified its merchandising of service—both household and commercial.

location at 1717 North Sheridan Road.

James and Wilbert Mathis started in the refrigeration business back in 1928. From the first, their business has been exclusively in refrigeration in all its phases—household, commercial, and air conditioning.

Since the war, a great deal of the company's work has been repairing and rebuilding domestic and commercial refrigerators. Formerly the company handled a well-known line of domestic refrigerators, but most of their commercial work was on General Electric units. After the war started, General Electric wanted a local dealer who could handle both sales and service of both domestic and commercial refrigeration—and Mathis landed the assignment.

To the Rescue

Then a local department store that had sold thousands of domestic refrigerators was compelled to close its servicing department when new models were no longer available. Again Mathis was selected to take care of the service work on their sales.

While specializing in the servicing of General Electric units, Mathis repairs and rebuilds any make or type of refrigerator. They deal in all replacement units for General Electric and carry parts for other makes as far as these are available. Their inventory of parts and materials runs around \$1000. In sealed units, they replace all that are possible. However, if no new sealed unit can be secured, they are equipped to rebuild the old one. All motor work is done in their own shop; they even make new bearings when these cannot be secured on the market.

In spite of no new domestic refrigerators to sell, the company's volume of business this year will run from \$40,000 to \$45,000. The great increase in rebuilding and repair work, together with the desire to have a modern display room all ready when new refrigerators are again on the market, demanded more room and that is why they moved to their present location.



Where rebuilt units now stand, there'll be new models when they are available.

Now, according to Wilbert Mathis, who with his brother James owns and operates the dealership, there are not only more service patrons than the company can handle at present, but a bang-up list of prospects also has been secured from this phase of the operation—and these prospects are all set up for post-war selling.

Preparing for the post-war business it feels is bound to come, the company has recently moved to a new

While sales of domestic refrigerators were an important part of their volume when these were available, they have always stressed their service business. In commercial refrigeration, most of these installations are custom built. The Mathis brothers figure out what equipment is needed and how it is to be installed. They prepare the plans, and the equipment is then produced at the factory and installed by Mathis.



The Mathis shop is fully equipped to handle all types of servicing work.

The company occupies the first floor and basement of an attractive two-story building 50 x 90 feet in size. Located in one of the best neighborhood shopping centers in the city, the new site has two big display windows.

The first floor is divided into three sections. In front is the display room. Back of this, separated by a long counter built in a partition, forming an attractive alcove, is the parts department. Over this department, a neon sign reads "G-E Repairs." At the left of the parts department is the office, where a young lady attendant takes 'phone calls, gives information, makes out invoices, and files shop orders and other records.

Back of the parts department and office is the shop. This is fully equipped with grinders, lathes, drill press, hydraulic press, complete motor testing equipment, and all small shop equipment and tools, including special tools for different makes of refrigerators.

Added Help

In addition to the Mathis brothers, two other men are employed at present. Both are experienced refrigeration service men. They work exclusively on the inside, while the Mathis brothers spend most of their time on the outside on calls.

The brothers do their own training of employees. "We select good mechanics, preferably auto mechanics," says Wilbert Mathis. "When we get men such as these, we figure we have 50 per cent of the training done.

"We teach them the principles of refrigeration and the details of mechanical construction of refrigerators. Both our present men are of an age where they are not subject to the draft.

"Repairing and rebuilding of domestic refrigerators is done in the shop, while commercial refrigeration servicing is mostly outside work, except for overhaul jobs. Practically all commercial work is booked in re-

sponse to 'phone requests, so we know in advance what we'll be called upon to do.

"On much of the household work, we don't know it is coming in until it arrives. We get a great deal of this work from the farm homes and smaller towns around Peoria. For owners of household units in the city who have no way of bringing in their refrigerators, we have a contract with a local delivery concern which hauls them in to us and delivers them to the user again. We handle from 450 to 500 domestic refrigerator calls each month. The commercial work varies considerably from month to month.

"Our charges for work are based on a 40 per cent profit over the cost of labor and parts used. On all outside calls, we make a minimum charge of \$1.75, plus \$1.50 for each additional hour.

"On units brought to the shop, we do not make the minimum charge unless work is done. In all our work, we replace broken and worn parts whenever required to do a good job, but salvage all old parts possible."

On every job a printed job order form is used. This is serially numbered and is in duplicate, the shop keeping the duplicate and the original being filed in the office.

The job order is printed to serve for both commercial and domestic work. It has spaces for owner's name and address, date, terms, cabinet model, unit model, serial number, directions on what is to be repaired, hours of labor, initials of mechanic, new parts used, details of repair done, cost, selling price, date completed, remarks, summary of labor and parts cost, and a coupon at bottom with serial number of job.

The latter is detached by a perforation from the sheet and attached to the unit until it is completed. Figures for cost of parts, selling price and the summary are entered in the office after the original copy is turned in there.

Invoices are made from the shop order forms. For domestic work, a regular sales slip is used, as these are cash jobs for the most part. For commercial work, a regular commercial invoice is made. Statements are sent to commercial refrigeration customers once a month.

"In addition to the regular run of business, we are often called to do special jobs in refrigeration," says Mr. Mathis. "One of these we had recently was an arrangement for a local bakery to keep bread dough at the proper temperature while mixing.

Continued on page 53



W. J. AULSEBROOK

Appointment of William J. Aulsebrook as sales manager of the electric refrigeration division of Servel Inc., Evansville, Ind., has been announced by Geo. S. Jones, Jr., vice-president in charge of sales.



since 1935, and before that time was associated with the Servel mountain division office in Denver, Colo.

He is an associate member of Refrigeration Service Engineers' Society and the American Society of Refrigerating Engineers.

A. E. DOAN

Railway and Engineering Specialties Limited announces appointment of Arthur E. Doan as head of their Toronto Branch.

Mr. Doan, connected with the refrigeration business for the past twenty years in both manufacturing and sales, was first president of the Ontario Maple Leaf Chapter of the R. S. E. S.

G. A. RHIMER

G. Albert Rhimer, who has been engaged in the merchandising of household appliances for the last 18 years, has been appointed sales manager of Trilling & Montague, Philadelphia distributor of Norge products.



Mr. Rhimer, who was with this company for six years prior to the war, has spent the last three years doing engineer-

ing sales work with the nation's largest shipyards. He will take up active management of the firm's sales organization as soon as he can terminate his war activities satisfactorily.

PAUL SAGAR

Paul B. Sagar has been appointed eastern field engineer for General Controls Co. Working out of the Cleveland factory branch, he will devote the major part of his time collaborating with eastern appliance manufacturers in working out problems of application and assisting them in test procedures. Mr. Sagar has served for five years as control engineer with Iron Firemen previous to his present connection with General Controls.

DAVID H. SHEARER

David H. Shearer, manager of the industrial insulation department of the National Gypsum Co. has been named president of the Industrial Mineral Wool Institute. Only industrial organization of its type in the country, this institute was formed to promote research

and study in the field of mineral wool insulation. Its members represent mineral wool insulation manufacturers throughout the nation.

A. G. CHAFFER

A. G. Chaffer has been appointed sales manager for General Electric's household refrigerator division. Mr. Chaffer's headquarters will be in Bridgeport, Conn.

F. M. DRAKE

F. M. Drake, who has been with the Frigidaire sales organization for the past twenty years, will head the sales force of a newly organized Wisconsin & upper Michigan peninsula

district office soon to be established in Milwaukee, Wis. Mr. Drake is well known in the district where he has been a field representative covering the entire territory.

JOHN A. MARSHALL

John A. Marshall has been appointed assistant to the general sales manager of Wolverine Tube Division, Calumet & Hecla Copper Co. He has been in the advertising, sales promotion and sales departments of the company since 1937, and will continue to supervise the advertising department in addition to his new duties.

IRA H. REINDEL

Ira H. Reindel, chief engineer for Norge, has been promoted to director



of Norge engineering to succeed H. H. Whittingham, who has been named vice president and manager of the Detroit Gear division of Borg-Warner Corp.

Mr. Reindel joined Norge in 1925, the first refrigeration engineer employed by Howard E. Blood, Norge president, and has been chief refrigeration engineer since 1931.

J. H. RASMUSSEN

James H. Rasmussen has been named general sales manager of the manufacturing division of Crosley Corp. and will be responsible for all sales activities of the division. He has been with Crosley since 1941 and was commercial manager of the division prior to his promotion.

W. M. CAUDELL, JR.

The Freez-All Home Freezer Division of Portable Elevator Mfg. Co., Bloomington, Ill., has announced the appointment of W. M. Caudell, Jr., as assistant sales manager.

DRAYER & HANSON CHANGES

Drayer & Hanson, Inc. has announced the following changes in its organizational set-up:

Albert Hanson has been named vice president in charge of engineering, J. C. Lombardi has been appointed vice president and director of sales, Scott M. Hauser, vice president, becomes director of advertising and sales promotion.

DAVISON'S Silica Gel Provides



Extra Protection

Davison's Silica Gel has become the industry's preferred drying agent because it DOES MORE for you than ordinary drying agents . . . gives you protection beyond removal of moisture.

- 1—It is processed especially for the dehydration of refrigerants.
- 2—Its scientifically-determined particle size assures you that the refrigerant will not channel —will be distributed evenly throughout the cartridge.
- 3—This even distribution of the refrigerant makes it possible for it to be in complete contact

with the entire pore surface area (7,500,000 square inches per cubic inch of Silica Gel) at all times.

- 4—It removes acids and corrosive compounds . . . in addition to moisture . . . instantly.
- 5—Its capacity for moisture is not affected by oil.
- 6—It will not cake nor powder.
- 7—It will not attack metals or alloys.

To get this COMPLETE DRYING AGENT that is effective on Freon, Methyl Chloride, Sulfur Dioxide, etc., specify Davison's Silica Gel from your jobber . . . in factory-charged dehydrators or in bulk for refill.



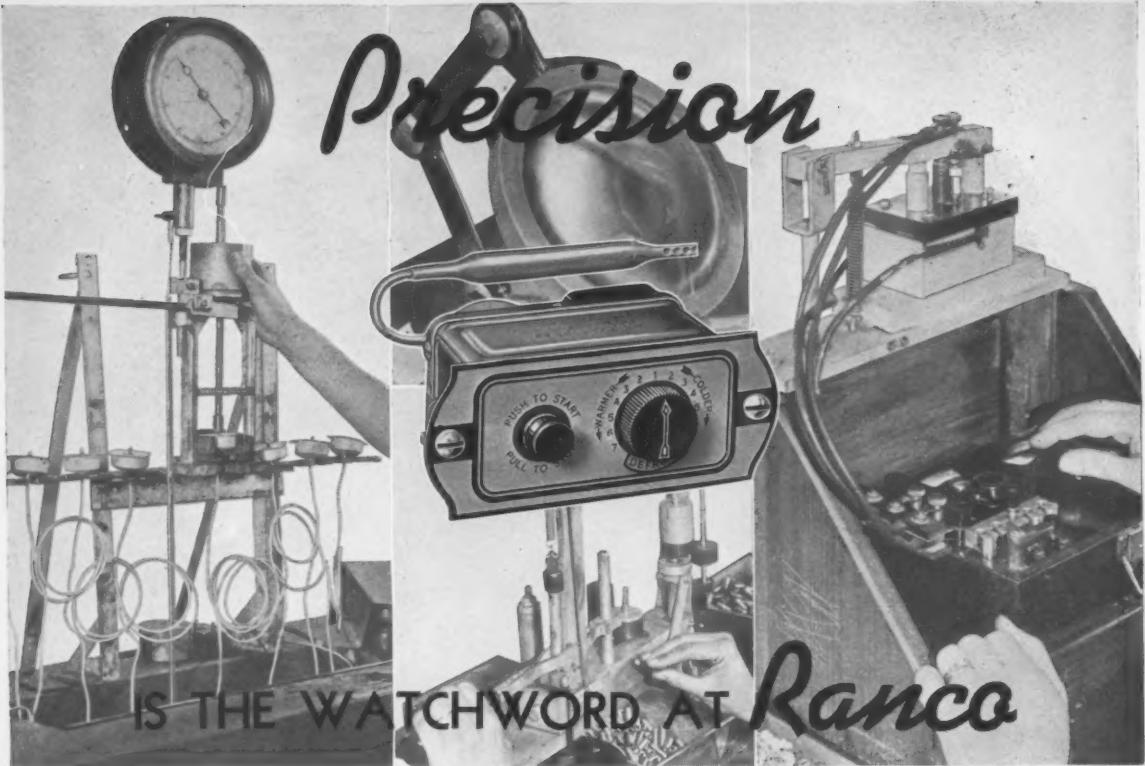
CURTIS BAY WORKS

THE DAVISON CHEMICAL CORPORATION
Progress through Chemistry



BALTIMORE-3, MD.

Canadian exclusive sales agents for DAVISON'S SILICA GEL: CANADIAN INDUSTRIES LIMITED, General Chemicals Division



IS THE WATCHWORD AT

Ranco

THE precision construction of Ranco Refrigeration Controls assures dependable, extremely accurate instruments of long life. Each part is so carefully constructed that operation is smooth and instant. In addition Ranco Domestic Controls are beautifully designed and sturdily constructed with stainless steel bases, top frames and side covers. That is why you can be proud and confident when you install Ranco.

WORK WITH YOUR RANCO JOBBER

Your Ranco jobber is well acquainted with the complete line of Ranco commercial and domestic replacement controls.

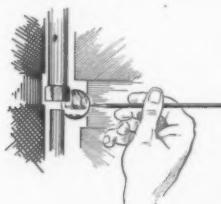
Ranco Inc.

COLUMBUS 1, OHIO



Your Tool Kit

Charles Perry, Fred Harvey Co., Cleveland, suggests a hand tool for every serviceman's tool kit. The tool consists of a standard dental mirror and can be used to see parts located in tight places. It can be held at



different angles to see almost any part. He reports it has been a life saver to him in locating small leaks on the back side of joints, in inspecting control contacts for pits, and for reading serial or model numbers on expansion valves and solenoid valves located in cabinets.

"Not at Home" Card

Almost every day, the average domestic refrigeration service man experiences the case where the customer has called for service, but doesn't stay home until the call is answered.

In order to save time and telephone calls, it is desirable to leave a "not at home" card, advising the customer that you have answered your service call, and will expect her to call you for a future appointment.

One of the most effective cards used for this purpose consists of a standard manila tag with string tie, which can be securely fastened to the door knob. This type of card serves the purpose much better than one which is put in the milk chute or slipped under the door.

A card of this type might carry the following legend:

"Our service man called at

Edited by
Warren W. Farr

..... A. M./P. M. and found no one at home. Please call us at (your telephone number) and make an appointment for a second call."

It is particularly important to have the service man note the time that the call was made, so that the customer will not be able to call your office later and insist that someone was at home when the service man was there.

Shop Recharging of Dehydrators

Extreme care should be taken in recharging dehydrators in shop. If the drying substance is poured for any distance through the air a con-

IF YOU CAN WRITE YOU CAN HELP

Every man who has served for any length of time as a service engineer has had one or more experiences that would help his fellow engineers. Safety precautions, a new way to do a job, a new tool or better use of existing tools, a simplified procedure—incidents almost too numerous to mention.

If you can write, you can briefly describe the condition or device. A drawing or picture will help demonstrate.

This appeal is directed to every reader of THE REFRIGERATION INDUSTRY.

Will you lend a hand?
THE REFRIGERATION INDUSTRY pays \$5.00 for each idea published.

siderable amount of moisture is picked up and the dryer is of little use after shop assembly.

Extreme care should be taken to get the drying agent from the container to the dryer as rapidly as possible with the least contact in surrounding air.

Always keep drying agent container closed tight when not in use.

Operating Enclosed Electric Switches

Form the habit of operating an enclosed switch with your left hand. The handle is invariably on the right-hand side, and when operated with the left hand your body will be out of direct line with a flash, if one should occur.

1. Stand to the right and at arm's length from the switch box.

2. Take hold of the switch with your left hand.

3. Turn your face away from the switch.

4. Close or open the switch quickly and firmly.

5. If the switch handle is loose or if it does not operate smoothly for any reason, notify your supervisor or the electrician promptly.

—National Safety Council
Safety Instruction Card No. 60

Locating Suction Line Strainers

When installing a suction line strainer, consider two things: first, will it be an oil trap, and will the entrained foreign material drop out of refrigerant path.

Certain types of strainers can be installed so they will trap oil. They should be so placed that oil will be permitted to drain freely. This is most easily accomplished by placing them in the vertical lines.

If a strainer is so placed that the

THE SERVICE MAN'S DEPARTMENT

material caught by the screen is directly in the refrigerant flow, the continuous agitation will break up the dirt particles and tend to distribute them evenly over the screen area, causing the strainer to plug quickly. Its capacity can be greatly increased by settling the dirt in one place away from the refrigerant flow, permitting the bulk of the screen area to remain clean.

Keep 'em Rolling

Nowadays, more than ever, giving good service to your customers hinges on having adequate means of transportation yourself. Cars are mighty valuable, and the chances of replacing yours if it wears out are not at all bright. Service men should think of protecting their present equipment that is used in the service business. One of the larger insurance companies has furnished its clients with a set of suggestions which are worth passing along:

"Keep 'em Rolling" is a slogan with a meaning, misinterpreted by drivers and so we offer you the "safe drivers' definitions.

"Keep 'em Rolling" means:

"To drive carefully and efficiently all the time—to spare the tires and gasoline and conserve the vehicle itself."

*I do it
this way...*



Here's a way to move heavy refrigerators for servicing, without marking floor or damaging linoleum or any other highly polished surface.

Simply use a wet, soapy rag, and wipe the floor all around the refrigerator or other fixture to be moved. By doing this, one man can move the heaviest machine without difficulty.

To put the machine back into place, just repeat the process. This is an excellent good-will builder with customers, since it eliminates marking up the floor or tearing the linoleum, when servicing either household or commercial units.

I. Arnold, Yonkers, N. Y.

"To prevent accidents.
"Keep 'em Rolling' does not mean:

"To tear into high speed in a hurry.
"To stick your foot in the carburetor and burn up the road.

"To jam on the brakes.
"To keep your motor hot and pounding.

"To try to catch your own tail-end going around a bend or street turn.

"To nudge and butt all the other vehicles off the road."

Unless you're careful, "I'll get those brakes fixed tomorrow" are liable to be famous last words as far as your wartime servicing activities are concerned.

When installing a new valve, a good kink is to file a notch in the handwheel to indicate the closed position. You can then always be certain when the valve is closed. In the event that an obstruction gets into the seat the valve will not close. The filed notch then provides visual evidence that there is an obstruction and indicates that the valve needs fixing.

W. F. Shield, Chicago.

A New Service Tool

Be sure to carry in your tool box either paraffin, tallow, or some kind of odorless dry stick lubricant, and use it on latch bolts, door strikes, and hinge pins.

Not only does this practice increase cabinet hardware life and ease of operation, but it is the little extra service appreciated by your customer. Practices like this distinguish your type of service as being above average.

Blood Plasma Preparation

Refrigeration is required in the preparation of blood plasma, through the entire cycle starting with the preservation of the human blood up to the point of final use as a frozen or dried blood plasma. Blood banks and blood plasma banks have brought extensive developments, in collection, preparation and preservation.

When the whole blood is received at the processing station, it is immediately placed in centrifugal machines and the red and white corpuscles are separated from the plasma. The blood plasma, which is an opalescent, amber colored fluid, is then siphoned off the top of the centrifuging flasks and immediately frozen.

Freezing is accomplished by placing the flasks of blood plasma in a low temperature cabinet held at a temperature of approximately minus 20° C. (minus 4° F.) or rotating the flasks containing the blood plasma in a cooling medium such as alcohol, which may be held at minus 30° F.

The frozen plasma is converted to dried blood plasma for the use of the armed forces. This is accomplished by desiccating from the frozen state at low sub-atmospheric pressure.

Service DO's and DONT's

DO:

1. Check fuses for proper amperages.
2. Check oil in crank case.
3. Line up fly wheel and pulley.

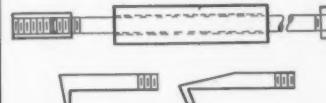
DONT:

1. Change expansion valve until you are sure it is defective.
2. Don't purge refrigerant in closed area where there is flame present or poor ventilation.
3. Don't over-charge drums in shop.

*I do it
this way...*

Removing seal faces, oil throwing washers, etc. can be an exasperating job.

The tool sketched below is easily made, and really works. To assemble it, you need a $\frac{3}{8}$ or $\frac{1}{2}$ " round rod, about 12 inches long, threaded n.c. both ends; a round hammer, about 1" diameter and 6" long, drilled to slide on the rod; a hex nut for one end of the rod, and



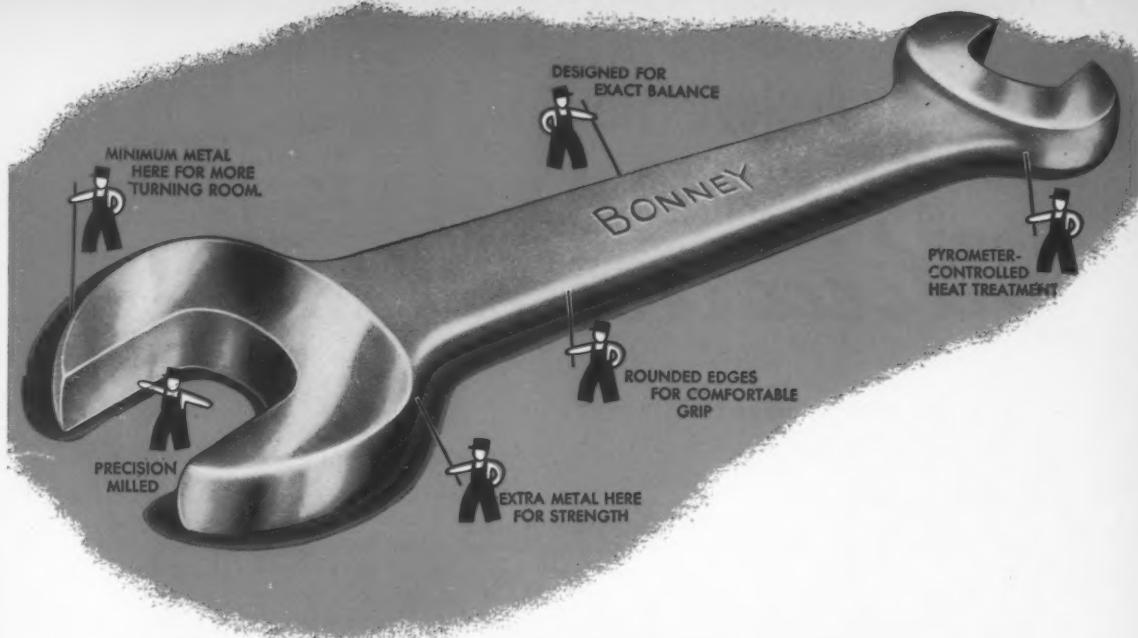
a screw coupling about 2" long to fit on the other end of the rod.

Two of the many forms of hooks that may be used on the coupling are also shown.

In operation, hold the hook against the part to be pulled, with one hand, and with the other slide the hammer against the nut. Move the hook to a different point each blow or two.

Usually less than six taps are required to pull a shoulder or ring.

*Edward A. Wenk,
New York City.*



It's Easy to See Why They're Better...

It's a funny thing about wrenches. You use them all day long. They're the most important tools in your kit. You know which ones do the job best—which ones last the longest. But chances are you never stop to think why.

When you take a good look at a Bonney Wrench, it's so easy to see why it's better.

The openings in a Bonney Engineers' Wrench, for instance, aren't just milled—they're *precision-milled*. They fit the nut exactly—no slipping, no forcing. The jaws are tapered to give you more turning room. They're reinforced with extra metal at the

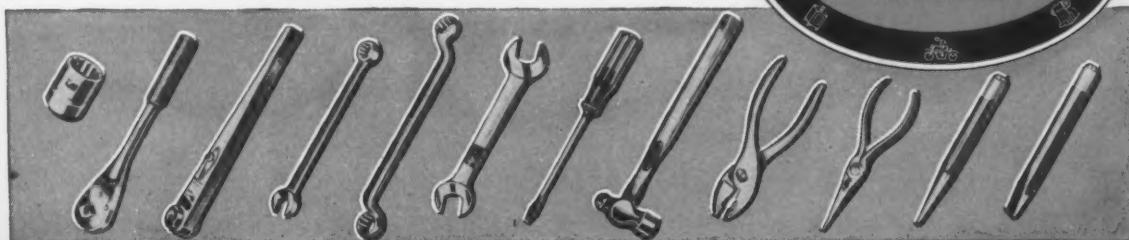
points of strain. The handles are rounded for an easy, comfortable grip. And something you can't see—to make Bonney Wrenches the strongest and toughest on the market, each one is given our special pyrometer-controlled heat treatment.

We put a lot into Bonney Wrenches because we want you to get a lot out of them.

If you do not already have a Bonney Engineers' Wrench Set, ask your nearby Bonney distributor or jobber to order one for you now. All Bonney Tools are sold exclusively through distributors and jobbers from coast to coast.

BONNEY FORGE & TOOL WORKS • 719 N. MEADOW ST. • ALLENTOWN, PA.

In Canada: Gray-Bonney Tool Company, Ltd., St. Clare & Reye Aves., Toronto



REFRIGERATION GRADE *Silica Gel*

By E. E. Thompson*

Not all grades of silica gel are suitable for use in the refrigeration field. Here are some of the accepted standards

THE refrigeration industry, while not one of the largest users of silica gel, is nevertheless a very important one. The elimination of moisture in refrigeration systems cannot be stressed too emphatically, and particularly during this wartime period. Shutdowns due to either ice formation in the refrigerant lines or moisture-produced acids are extremely costly from the standpoint of food spoilage, in addition to invaluable service technicians' time.

War Ups Production

Production of silica gel has had a phenomenal increase since the start of the present war. While discovered for World War I, it remained for World War II to bring out its necessity, due to its affinity for moisture. Demands for the material to prevent rust, corrosion, mold, and other moisture damage in the packaging of critical war material are mainly responsible for the increased usage, although catalytic applications, such as in the synthetic rubber program, and in the fluid catalytic cracking process in the giant "cat crackers" for the manufacture of high octane gasoline, have also contributed to an increase of tremendous proportions over pre-war production.

All existing manufacturing facilities in the country are in around-the-clock production. The temporary critical situation has resulted in the WPB placing the material under allocation in Schedule 53 of Order M-300.

However, the placing of silica gel under allocation should not work any

hardship on the refrigeration industry in its efforts to obtain supplies of the material for dehydration of refrigerants. Under the "small order" exemption in paragraph "B" of the Schedule, WPB allows delivery by a producer and acceptance by customers of 550 pounds per month, without necessity of applying for an allocation.

This means that refrigeration supply jobbers should be able to obtain their supplies of silica gel from the manufacturer as they have in the past, without necessity of an allocation, provided their orders do not exceed 550 pounds per month.

Correct Grade Important

Owing to the broadened use of this dehydrating agent in packaging, catalysis and other applications, users should be extremely careful that they obtain the correct grade of silica gel for refrigeration work. Jobbers and service men should make certain the material is one that has been devel-

oped for the refrigeration industry.

Refrigeration grade silica gel should basically be defined as a "fine chemical," designed to function properly when enclosed in a dehydrator cartridge as a component part of the refrigeration system, and must be manufactured under strict laboratory control. Suggested qualifications for such a material, and the reasons for their adoption, are as follows:

Suggested Qualifications

1. The material should be pure. Silica gel manufactured from low grade raw materials will reflect undesirable qualities in the finished dehydrating agent. Insufficiently washed silica gel will contain sodium acid sulphate, sodium sulphate, or sulphuric acid, any one of which would be extremely corrosive to a refrigeration system. Purity is measured by silica content, and this value should be not less than 99.6% dry basis.
2. The material should be in an active condition when used. This can be controlled by measuring the volatile constituents of the gel before shipment, and shipping in a properly designed metal or glass container to assure safe arrival to the user. The total volatile should be not over 6.0%.
3. The material should have high moisture absorption properties over a wide range of moisture concentrations in the refrigerant. This quality can be measured by determining the amount of moisture pick-up from air at

Continued on page 55

* Eastern District Sales Manager,
The Davison Chemical Corp.



Moisture, always a source of trouble in refrigeration systems, has little chance of escaping a good drying agent.

This SOLA CONSTANT VOLTAGE TRANSFORMER

has an important postwar future in

YOUR

HEATING CONTROLS .
REFRIGERATION CON-
TROLS . TELEVISION
SETS . F-M RADIO .
VACUUM TUBE VOL-
METERS . ELECTRON-
IC GAUGING AND IN-
SPECTION EQUIPMENT
• PHOTO-METRIC IN-
STRUMENTS . . . there are
other applications of course



Here is a SOLA Constant Voltage Transformer that should be a built-in part of your equipment—

First: because it will stabilize output voltage at your rated requirements regardless of line voltage fluctuations as great as $\pm 15\%$.

Second: because its small, compact size is ideal for chassis mounting.

Third: because of its low, economical cost.

Fourth: because of the saving that can be made through the elimination of other components.

Fifth: because a majority of anticipated service calls can be eliminated from your cost calculations.

Sixth: because the users of your product will get greater satisfaction from trouble-free service.

This particular transformer is rated at 6.3 volts, 17VA output and is designed primarily for the stabilization of vacuum tube filament and heater voltages. Other voltages and capacities for chassis mounting can be supplied on the same low cost, economical basis to meet your exact requirements.

SOLA Constant Voltage Transformers

Transformers for: Constant Voltage • Cold Cathode Lighting • Mercury Lamps • Series Lighting • Fluorescent Lighting • X-Ray Equipment • Luminous Tube Signs
Oil Burner Ignition • Radio • Power • Controls • Signal Systems • Door Bells and Chimes • etc. SOLA ELECTRIC CO., 2525 Clybourn Ave., Chicago 14, Ill.

To Manufacturers:

Complete specification details covering this new Constant Voltage Transformer will be furnished at your request.

Ask for Bulletin 25-CV-103

YOUR PLACE in

Who'll make home and farm freezers post-war? Who'll sell them? This article looks into the present lineup, forecasts tomorrow's trends

REFRIGERATION men who contemplate selling home and farm freezers can scarcely be blamed for taking an "I'm from Missouri" view of the present confused picture. For one thing, quiesimates of the number of manufacturers, big, little, and in between, who say they'll start

turning out home and farm freezers the minute materials become available vary from a conservative 31 to a high 200. One authority says there'll be 132 makers; another in the trade mentions—with some astonishment—187. THE REFRIGERATION INDUSTRY has a list of 79 probable manufacturers, some thirty of whom have already announced models for the post-war market.

A second factor meriting careful evaluation is the vast spread in estimated figures of the potential market



Pelco's drawer-type unit will be sized from 6 to 18 cubic feet.



Here's what International Harvester's home unit will be like.

By Hiram K. Smith

★ Gibson will be another entry in the post-war home freezer field.

★ (Far right) Seeger's drawer type unit will store 300 pounds of food.

the Home Freezer FUTURE

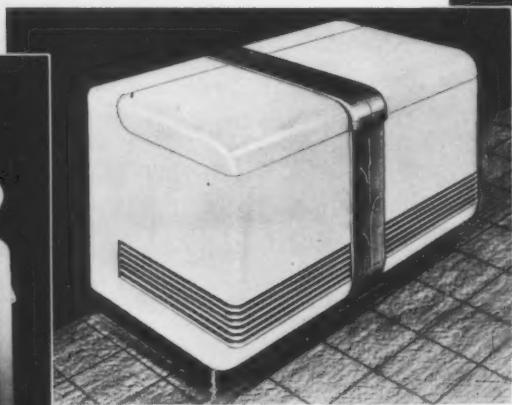
for home freezers. These estimates—some based on scientific surveys—range from 200,000 to 2,000,000 units a year post-war.

One major manufacturer predicts a market for 750,000 in the first two post-war years; another says 350,000 to 400,000 a year. *Fortune* magazine forecasts annual production of 1,000,000 units. Said a report of the Home Freezer Task Committee of the

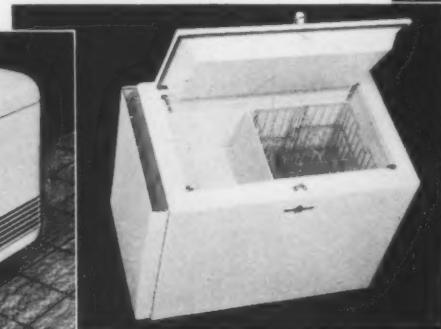
Refrigeration and Air Conditioning Section of WPB: ". . . a program of 125,000 home freezers per quarter or 500,000 per year would not meet immediate demand." And one manufacturer is reported set to turn out 150,000 annually alone, is said to have 10,000 applications for dealerships on file.

The innocent cause of all this confusion is simply a well-insulated box

designed to freeze and store, or to store alone, any of the numerous foods that have been found well adapted for freezing. And for the most part volume production of home freezers by any appreciable number of manufacturers never has existed. As a matter of fact the history of this business is so brief it can be sketched in only a few sentences.



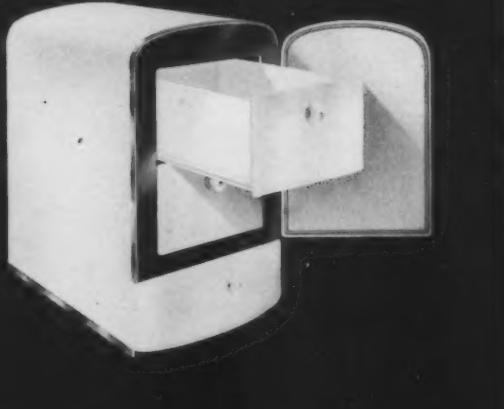
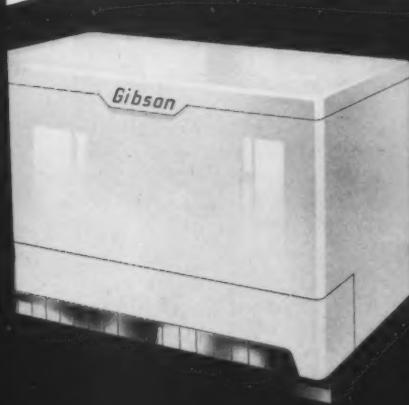
Ben-Hur's new cabinets are styled by Brooks Stevens.



Coolerator's post-war 6 cubic foot freezer.



Preview of Kelvinator's chest-type freezer unit.

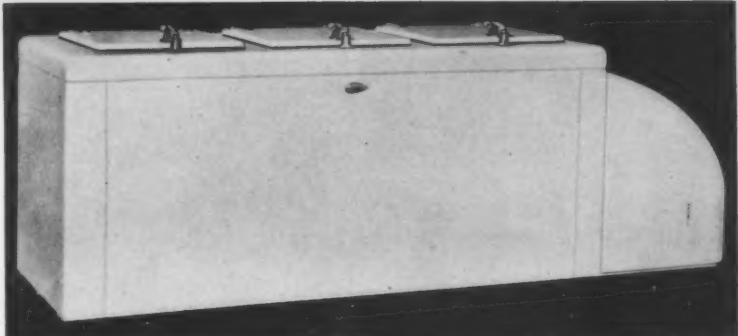


Dr. Donald K. Tressler, of General Electric, told members assembled for the annual national convention of the American Society of Refrigerating Engineers in New York last December that prior to 1937 all home freezers in use were either homemade or custom-built. By 1939, however, Emil Steinhorst & Sons, using the designing ingenuity of Danner Bierhaus and inspired by H. E. Babcock of Cornell University, already was going forward on a mild production basis.

By that same year Jewett had announced a freezer chest, originally designed for use by sportsmen; Victor Products Corp., Esco Cabinet Co., and several others were turning out farm freezers on a small scale. Both Steinhorst and Esco, incidentally, had models on exhibit at the New York World's Fair of 1939-40.

Within the next couple of years, as the idea caught the public fancy, demand began to snowball, and some firms abruptly changed the names of their standard ice cream cabinets to make them acceptable as home freezers. Biggest impact on the market, however, was made by Motor Products Corp.'s "Deepfreeze." The name was a happy choice, and heavy consumer advertising made it practically synonymous with "home freezer." By 1944 Deepfreeze is reported to have had at least 15,000 units installed, although many of these are on farms and many more are of more than one unit.

Before most manufacturers of experience could get into volume production, war-time materials restrictions halted further expansion. Despite this, today probably 50,000 home and farm freezers are in operation. About 75,000 converted and unconverted ice cream cabinets (the WPB's Ice Cream Cabinet Task Committee says the figure is at least



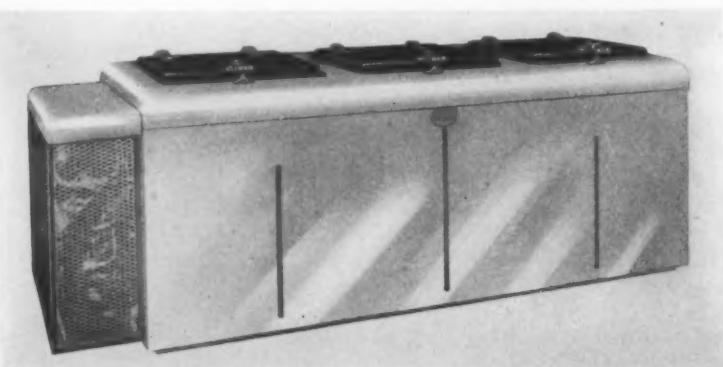
Sanitary's "Quicfreez" is the first of its projected post-war series.

100,000) are serving in a similar capacity. In addition about 5,000 freezers have been hand- or custom-made from used equipment. And although there is some disparity among most estimates, these figures find substantial agreement in all levels of the trade.

Although you may be wondering at this point how such a background can justify the elaborate plans and enthusiastic estimates of the post-war market as anticipated by refrigeration manufacturers, you may rest assured justifying facts do exist. Surveys by magazines and manufacturers uncover such significant facts as these: 90 per cent of 25,000 customers of the Chicago Insulation Corp. want home freezers when available; 57 per cent of the people interviewed by the Cleveland Electric Illuminating Co. want home freezers when available; 75 per cent of farm families interviewed by the magazine *The Farmer* have indicated that they will buy farm-freezers post-war.

American Home magazine surveyed

Steinhorst plans to market this 18-foot cabinet for farm homes.



Frigidaire had this unit in its pre-war low temperature line.

a cross-section (2000) of its readers, found 39 per cent would buy a car when available, 30 per cent would buy radios and phonographs, 29 per cent would buy washing machines, and 27 per cent (640 out of 2000) want home freezers.

One of the major factors to consider when investigating the potential home freezer market is the general increase in everyday use of quick-frozen foods (see THE REFRIGERATION INDUSTRY, Dec. '44 and Jan. '45). Indeed, some manufacturers qualify their post-war estimates by linking sales with post-war distribution of quick-frozen foods, on the premise that householders won't buy a freezer unless they can also buy frozen foods readily and cheaply.

Estimates of the number of people now using packaged frozen foods varied last year from 13.8 per cent to 18 per cent. In a survey conducted by the *Wisconsin Agriculturist*, housewives were asked: ten years after the war, when unexpected company comes for dinner, do you think

Continued on page 34

IF REFRIGERATION SYSTEM OPERATES TOO LONG OR CONTINUOUSLY...

REFRIGERATION SERVICE MANUAL

The Brunner Manual gives the following possible causes and remedies:

PROBABLE CAUSE—TEST AND REMEDY

Control does not cut out. Contacts frozen. Adjust, repair or replace control.

Lack of gas. Locate leak and charge correctly.

Lack of water or water temperature high to water cooled condenser. Water strainer clogged. Clean; get cooler water source.

Dirty condenser. Clean condenser.

Poorly ventilated unit. Relocate unit with proper air circulation over condenser.

Air in system. Purge air from system.

Inefficient compressor. Check

and repair or replace valves or pistons and rings.

Clogged expansion valve or strainer. Clean or replace. If frozen expansion valve see instructions.

Insufficient evaporation surface. Add additional surface.

Ice on evaporation coils or dirty coils. Defrost coils more often or clean.

Condensing unit too small. If speed cannot be increased replace with larger unit or supplement with additional unit.

Room insulation breaking down or inefficient moisture infiltration. Repair or replace.

Cooler doors left open. Hot foods. Caution operators.



Your responsibility is to secure maximum efficiency in the performance of the refrigeration units you are called upon to service. Under existing conditions they must give a long life of efficient service. Your Brunner Manual can help you. If you don't have a copy, we'll be glad to furnish one for \$2.50. Write to:

Brunner Manufacturing Company, Utica 1, New York, U. S. A.

DOES YOUR SERVICE HAVE A MANPOWER

DEPARTMENT SHORTAGE?



YOU CAN TAKE SERVICE BUSINESS WITHOUT DOING THE REPAIR WORK

by using G-E Factory Service Plans

EVEN if a scarcity of skilled repairmen has interfered with your ability to service fractional-horsepower motors, here's a way to get your share of this increasing wartime business.

These G-E Plans enable you to repair or replace, *quickly, economically, and expertly*, practically any G-E fractional-horsepower motor which has become inoperative, regardless of the type or make of appliance on which it is used. And there's no need for you to train repairmen—G.E. does the work, *quickly and reasonably*, and you know your profit beforehand. You render the service without actually making the repairs.

Investigate these simple and profitable Factory Service Plans. Learn how they're helping hundreds of other dealers to maintain business now and to build and hold trade for the postwar period. Ask your distributor for details today. Or, just fill in and mail the coupon.



FRACTIONAL-HP
MOTORS

GENERAL ELECTRIC

Buy all the BONDS you can —
and keep all you buy

Here are the
FACTORY SERVICE PLANS
for G-E fractional-hp motors

1. The Exchange Plan — Covers the most commonly used types of G-E fractional-horsepower motors. Makes possible immediate replacement, from G-E field stocks or from your own buffer stock. Replacement motors carry the G-E new-motor warranty, except for finish.

2. Special Service Repair Plan — Provides for factory repair of semistandard G-E f-hp motors not covered by the EXCHANGE PLAN, at established prices. Enables you to make quick, accurate, on-the-spot estimates. Repaired motors carry the G-E new-motor warranty, except for finish.

3. Regular Repair Plan — Covers f-hp motors not included in either of the other two plans, except extremely old or obsolete models. Inspection is made at the factory, and a cost estimate is submitted before work is started. These motors also carry the G-E new-motor warranty, except for finish. This plan rounds out this G-E service and enables you to handle repairs on practically any G-E fractional-horsepower motor.

General Electric Company, Section F700-76
Schenectady 5, New York

Gentlemen:

I'd like to know more about how your FACTORY SERVICE PLANS for f-hp motors can help me. Please send me a copy of your booklet.

Name

Company

Address

8860

advance base use, ice plant and cold storage equipment, certain condensing units for all uses and components for all these items) has been shelved, pending further conferences and expressions of industry opinion.

● BRIEFLY TOLD

THE Bureau of Standards has issued a revised set of Standards for commercial refrigeration condensing units . . . The new standards are identified as Commercial Electric Refrigeration Condensing Units (Second Edition) Commercial Standards CS107-45, and will become effective for new production six months after official announcement of the cessation of hostilities. . . . If you want a copy, write to Bureau of Standards, Washington 25 . . . General Electric has obtained options on 100 acres of land in Ashtabula, Ohio, to erect a postwar plant costing between four and five million dollars, for the manufacture of refrigeration units . . . The new plant, according to the announcement, would make "home freezers" as well as household refrigerator units. . . .

Increased production of the war materials for which it is responsible was reported by Minneapolis-Honeywell . . . The company is turning out about 50 different war instruments . . . Including gunsights, telescopes, tank periscopes, autopilots for precision bombing aircraft, engine controls and some restricted items for the air forces. . . .

General Electric has gone on the air with the "G-E

House Party" over CBS, to support retailers now in preparation for postwar business . . . and Nash-Kelvinator is airing a new Blue Network show, starring the Andrews Sisters, George "Gabby" Hayes, and guest stars. . . .

Herman Goldberg's annual Christmas party drew a turnout of 1227 people . . . more than twenty draw prizes were presented, including four war bonds . . . fifteen waiters, three house men, and four bartenders were employed to handle the crowd. . . .

At a meeting of directors of the new Monitor Equipment Corp., a national policy of selling its line of twenty to thirty mechanical appliances, including refrigerators, freezers, and coolers, exclusively to independent dealers was adopted. . . .

Kelvinator has leased 15,000 sq. ft. of floor space in Buffalo to house zone headquarters.

● INVENTORY OUTLOOK

PROSPECTS for dealers and distributors obtaining refrigeration items for inventory purposes are still uncertain. Present indications are that air conditioning units (store type 3 h.p. and under) and room coolers, bottled beverage coolers, bulk beverage dispensing equipment, all types of display cases, bottle type water coolers and pressure type under 5 g.p.h. capacity, evaporative coolers, farm and home freezers, ice cube makers, and most soda fountain equipment will be obtainable by dealers and distributors without ratings.

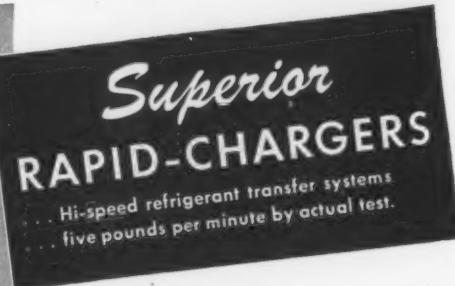
None of these items is being made at present, however, so a source which has had them in inventory would have to be found.



TYPE 630—illustrated above, is a complete refrigerant transfer system, with all equipment mounted on a special composition panel.



TYPE 631—illustrated below, is recommended for use where evacuation and discharge, and other facilities provided on Type 630 are not required.



RAPID-CHARGER is the result of careful study of all known refrigerant transfer methods, systems and problems pertaining thereto. It has instantaneous liquid coolers—one for each refrigerant to be transferred—connected in series with a refrigerating circuit, using a thermostatic expansion valve, and a small condensing unit with pressure control.

RAPID-CHARGER is fast—no valuable time lost in filling cylinders—no purging necessary. Refrigerant losses are practically eliminated.

If you haven't a copy of Catalog R2, request one today.

SUPERIOR VALVE & FITTINGS COMPANY

PITTSBURGH - 26 - PENNSYLVANIA

OFFICES IN PRINCIPAL CITIES • WEST COAST STOCK LOS ANGELES (15) • JOBBERS EVERYWHERE

HOME FREEZERS . . .

Continued from page 30

you'll take it from cans, from the home freezer, or make it of dehydrated foods? Sixty-two per cent of the women replying said they expected to take it from their home freezers.

And 86.9 per cent of urban housewives told *Good Housekeeping* interviewers they would be consumers of frozen foods after the war (35.3 per cent of people living in cities over

100,000 population will purchase frozen foods "often"; another 51.6 per cent intend to purchase them "occasionally").

So that's the market. It breaks conveniently into four main sections—rural, rural and locker plants, suburban, and urban—and the special requirements of each determines the kind of freezer best suited to its needs.

A freezer of more than 16 cu. ft. is called a "farm" freezer (although some of this size and larger will be found in urban areas, to be sure).

Practically all farm freezers are designed both to freeze and store foods, are huskier generally than the lighter-duty cabinets, can handle heavier peak loads. A single temperature or storage only box of 3 to 6 cu. ft. can be labelled a "home locker", while dual-temperature boxes up to 15 cu. ft. are properly "home" freezers.

The Farm Market

From the facts at hand, it is possible to conclude that in truly rural areas—isolated farms, large ranches and plantations—demand will be for farm freezers in the largest sizes, up to and including walk-ins. Sections served by and accustomed to locker plants, on the other hand, probably will do less actual freezing of their own produce, hence will be in the market for the larger size home lockers and small farm freezers adequate to hold over supplies for a week or so between trips to the locker plant and to freeze small quantities of home-prepared foods.

Buying power represented in the suburban fringes around our larger cities is, in the main, above average.

Continued on page 36

THE GAUGE THAT CAN BE KEPT ACCURATE



No one has ever found a way to make a pressure gauge that can't be knocked out of adjustment. But Marsh has developed the next best thing—a handy, basically sound way to correct a gauge that has been thrown out of adjustment by shock or over-pressure.

When a Marsh pointer fails to return to zero, you simply turn the "Recalibrator" screw, as illustrated above, until the pointer coincides with the zero mark.

Most errors in gauges are caused by distortion of the bourdon tube, which produces an improper relation between the tube and the movement. The conventional method of merely resetting the pointer does not correct this relationship. As a result the gauge may remain incorrect at certain points on the dial.

But the "Recalibrator" actually re-establishes the relation of the tube to the movement—actually does "re-calibrate" the gauge.

The manufacturer who takes the most pains to build a gauge that is accurate would naturally be the manufacturer to provide the best means of *keeping* it accurate!

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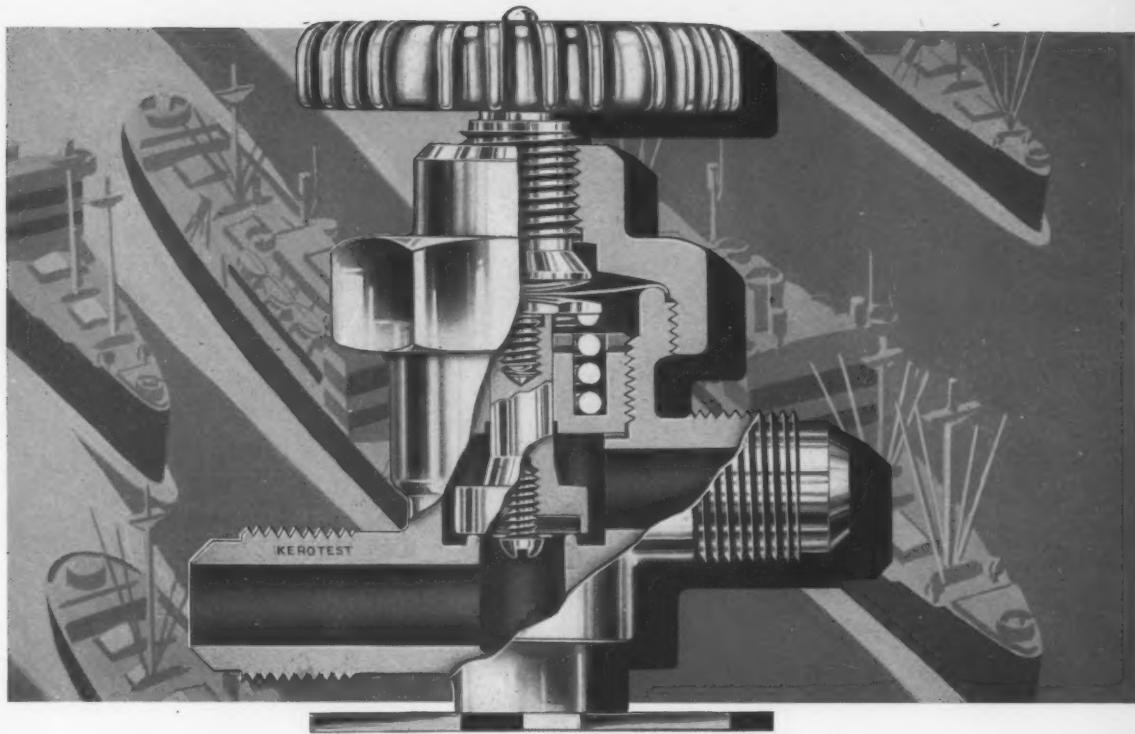
You should have Bulletins MU-183 (Single-Phase Motors) and MU-182 (Polyphase Motors). Besides these two bulletins you should have Service Bulletins MU-7, MU-26, MU-30.
M44-21



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PITTSBURGH 22, PA.

Valves • Fittings • Accessories

ORIGINATORS OF THE PATENTED DIAPHRAGM PACKLESS VALVE

HOME FREEZERS . . .

Continued from page 34

Some of these suburbanites have access to locker plants, many do not. It is likely that this section of the market, therefore, will be heavy buyers of farm freezers and the larger home freezers.

Out and out city dwellers probably will be the largest single market for small home freezers and 6 cu. ft. and smaller home lockers, since in this case floor space available and sources of frozen foods are particularly im-

portant factors. An additional factor to keep in mind regarding the city freezer market is that many post-war domestic refrigerators will include 1½ to 2 cu. ft. of zero storage space—ample for day to day storage of retail size packages.

The dealer and distributor in large cities can prepare the ground for his post-war freezer business by canvassing larger homes and apartment houses. This refrigeration man will do well, too, to remember that hotels, hospitals, restaurants, clubs and institutions of all kinds are likely prospects for the larger sizes of stor-

age cabinets, although few will want dual-temperature equipment.

Competition for some of the ready-made freezer business is bound to be fierce. Obviously a few fly-by-nights will plunge into the field, hoping to make some quick and easy money and then pull out, leaving a trail of orphan units to become the service man's headache.

Competition Aplenty

On the other hand, competition will be tough from chains, department stores, farm equipment companies and the mail order house retail stores. Some manufacturers maintain that locker plants are a natural outlet for freezer sales.

Some veteran locker plant operators, however, submit that the best way to cash in on a boom in home freezers is to make a deal with existing refrigeration men, handing over all the freezer sales in return for a tie-up that guarantees the locker man all the householder's processing, wrapping and freezing business.

The fact is, of course, that home freezer sales organizations are going to have to set up a service organization—and few locker plants are pre-

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Only \$2.00 Written by H. P. Manly, refrigeration authority, this NEW book covers refrigeration problems in conversational language so that its 300 pages and 138 diagrams and illustrations can't miss being a real HELP TO YOU. Covers practically every operation in field service and shop operations which may be required. Includes domestic types of refrigeration, and fully and completely explains the commercial types in small and medium sizes, such as used in markets, milk depots, soda fountains, flower shops, etc., as well as in many air conditioning systems.

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Send me the NEW complete '45 edition of Refrigeration Service Manual . . . C.O.D. If book is not entirely satisfactory, I'll return it in 10 days and you will refund my money. I'll pay the postage on return. Enclosed is a money order for \$2.00 and we'll pay postage, saving you approximately 10% Same Money Back Guarantee. Name . . .
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City . . . Zone . . . State . . .
Money enclosed . . . Send C.O.D.

pared to make this step. The refrigeration dealer with a functioning service department is, again, in the highly favorable position of being all set to go. He can begin now to develop his prospect lists, carefully size up and take on the line of a likely-appearing manufacturer. The urban refrigeration man may be expected to hit top volume in the moderate size field, keeping in mind size of family and the limitations imposed on design by the average doorway, stair landing, and floor space available.

The suburban dealer, after close study of his potential market, will likely enough find a demand for smaller farm freezers and larger home freezers, unless he's in a locker plant area. In the latter case, he'll be smart to reach an agreement with a local merchant providing for supply of frozen foods to the freezer installations he makes.

Here Are the Facts

For the record, a quick review of plans for the future reveals these pertinent facts:

Cost of operation will vary from \$2-\$5 a month, depending of course, upon kwh prices. One expert tested his equipment and reported that 3, 6 and 15 cu. ft. cabinets took 56, 65, and 123 kwh a month. One 18-foot box cost \$36-\$40 a year; a 26-foot box cost \$4.50 a month with power priced at 3¢ kwh. Another box took 175 kwh (\$5.25) a month in a 70° F. room; 133 kwh (\$4.00) in a 55° F. room. Information at hand indicates that it costs about 3¢ a pound to freeze about 1¢ each time the cabinet door is opened.

Temperatures, authorities agree, must fluctuate hardly at all. Veterans prove that plus 10° F. is generally



"You can fool all of the people...
...all of the time."



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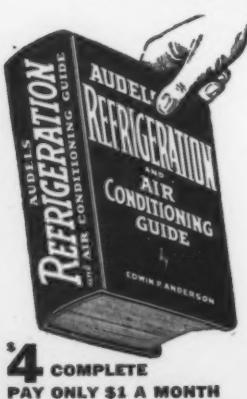
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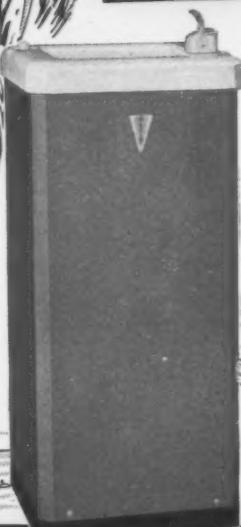
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too high for best storage, since deterioration, although not immediately apparent, is constantly under way at that temperature. Zero F. plus or minus 2 degrees is best for storage. Freezing, on the other hand, demands temperatures of at least -10° F.; -15 or -20° F. is still better.

Sizes will depend, as we have seen, upon the specific needs of the household. Six cu. ft. seems to be the aver-



Jewett's "arctic trunk" was one of the early home units.

age hit upon by most manufacturers, but remember that the early popular domestic refrigerators were under 5 cu. ft.—and today most users feel 7 or 8 cu. ft. is not large. A 25 cu. ft. unit will be about average farm freezer size, although plans have been announced for other sizes ranging from 15 cu. ft. up to walk-ins.

Prices will be about the same, according to one authority, as a good domestic refrigerator. Some announced prices are a 12 footer for about \$250; 15-16 footers for under \$400.

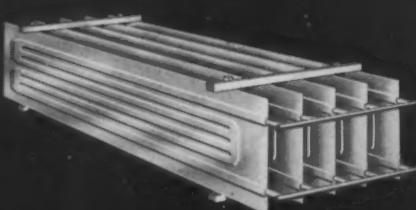
Design changes will do away with present users' chief gripes: packages will be more accessible, some makers will build drawer-types, others vertical units, most will eliminate waste space near the top where warm air might accumulate.

Certainly there'll be a post-war boom in home freezers, and plenty of smart businessmen are making plans now to cash in on it.

Editor's Note: Want to know more about home and farm freezers . . . names of manufacturers to contact for postwar franchises? Write us—we'll be glad to answer any and all requests you may have, promptly.

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Standard Solvent Co.
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Chicago

the Tulsa, Okla., territory, has moved to a new location at 112 North Main St. The company offers a complete rebuilding service on cabinets and refrigeration units.

NEW G-E BRANCH TO HANDLE PITTSBURGH

Distribution of G-E household refrigerators and appliances in the Pittsburgh area will be handled by the company's newly established branch there, which has taken over the facilities of the former distributor, Ochiltree Electric Co. C. W. Hartenfels is manager of the new branch.

CHANGES IN FRIGIDAIRE SERVICE DEPARTMENT

Paul V. Sprout, service manager of the Frigidaire division, General Motors Corp., has announced the following appointments in the service department. C. P. Ogden has assumed the position of supervisor of service parts sales and the field contact division; R. K. Eley, that of supervisor of the service technical division, in complete charge of training, service literature, field shop operations and field and factory technical contacts; R. V. Leslie, the post of supervisor of the service inventory control division.



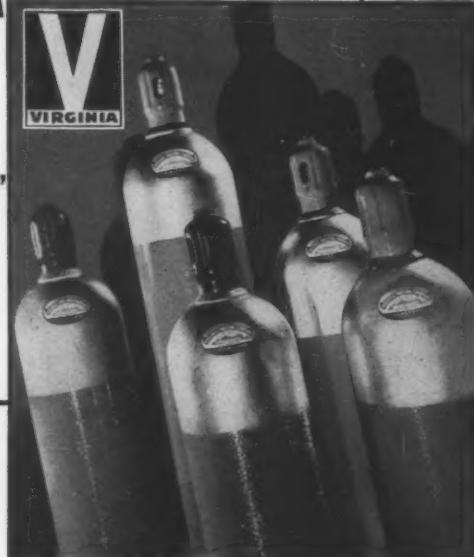
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Buy War Bonds & Stamps

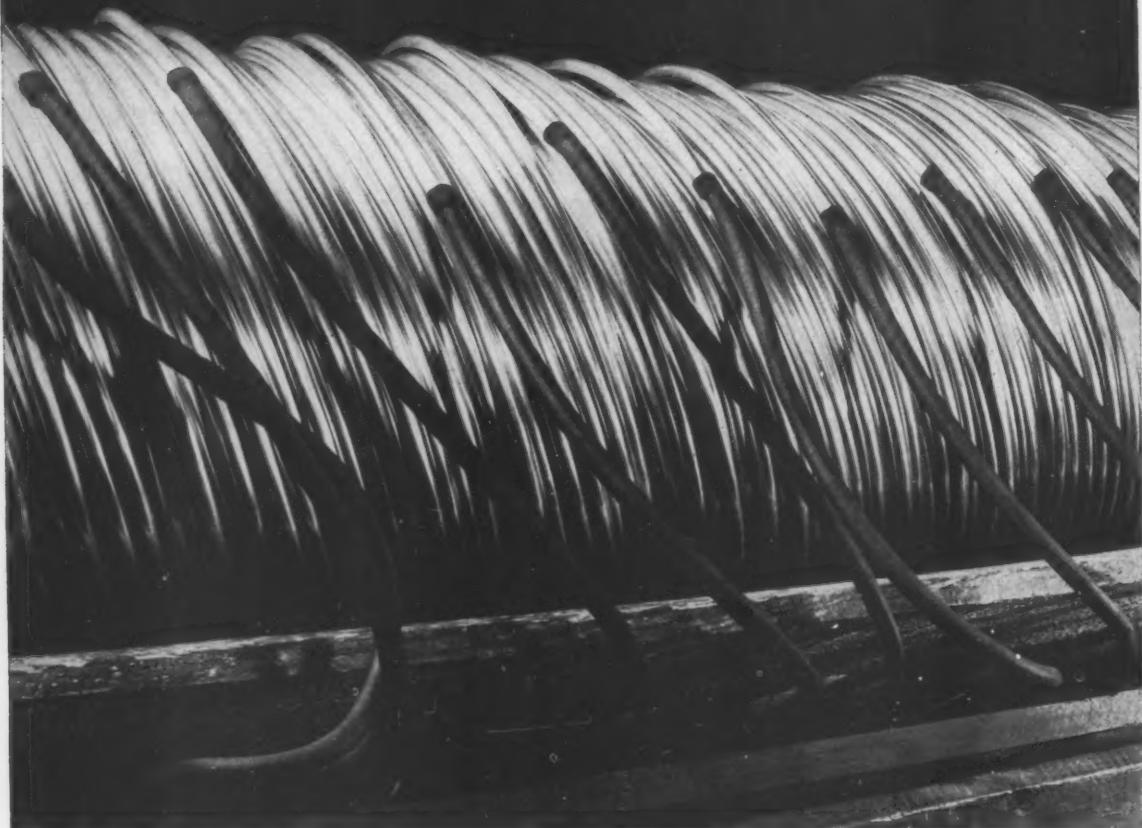
AGENTS FOR KINETIC'S
"FREON-12" and "FREON-22"

VIRGINIA SMELTING CO.

WEST NORFOLK, VIRGINIA



Fully dehydrated— and AVAILABLE NOW!



REVERE Dryseal Copper Tube for refrigeration is sold through distributors everywhere.

This picture shows Revere Dryseal Tube being specially treated to remove all moisture. At the end of this process the inside is completely clean, and dehydrated or dry. This is of course important in refrigeration since the slightest moisture may react with some refrigerants and produce corrosive products. Following this the tube is sealed and you receive it bright and bone-dry.

A number of other special "kid glove" treatments assure the absolute suitability of Revere Dryseal Refrigeration Tube for its purposes. The metal is deoxidized to begin with, and is carefully kept free of oxides through every manufacturing step, including annealing to dead softness in a

special atmosphere. Furnished in coils of 25, 50 and 100 feet, and in sizes from $\frac{1}{8}$ " to $\frac{3}{4}$ " o.d., wall .035".

Also available for refrigeration and air conditioning—Revere Sealed Copper Tube, each end plugged and taped for protection against injury and contamination. Available in types K, L and M. For Revere Dryseal or Sealed Copper Tube, see your distributor.

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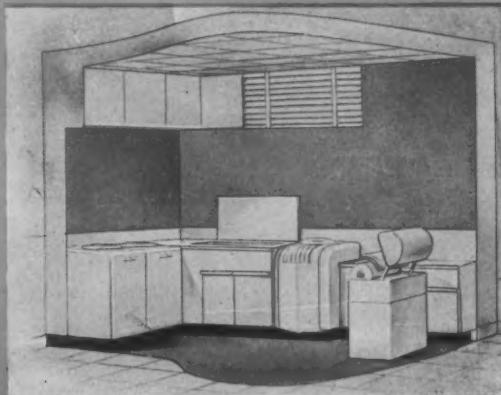
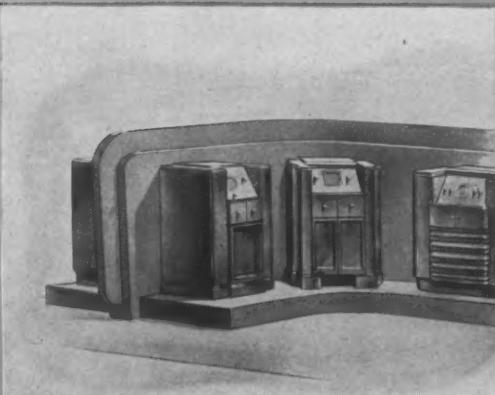
HOW TO PLAN YOUR OWN STORE

PART II

TO THE successful dealer showmanship is an essential part of his business. Your store is a stage and your customers the audience; to make sales, you must be able to attract and hold the attention of this audience. Now is the time to start making plans for your store of tomorrow.

To help you do this we are presenting here practical, easily-built store layouts and display fixtures. It will help you in your plans to make your store a center of your community and a modern background for your sales efforts.

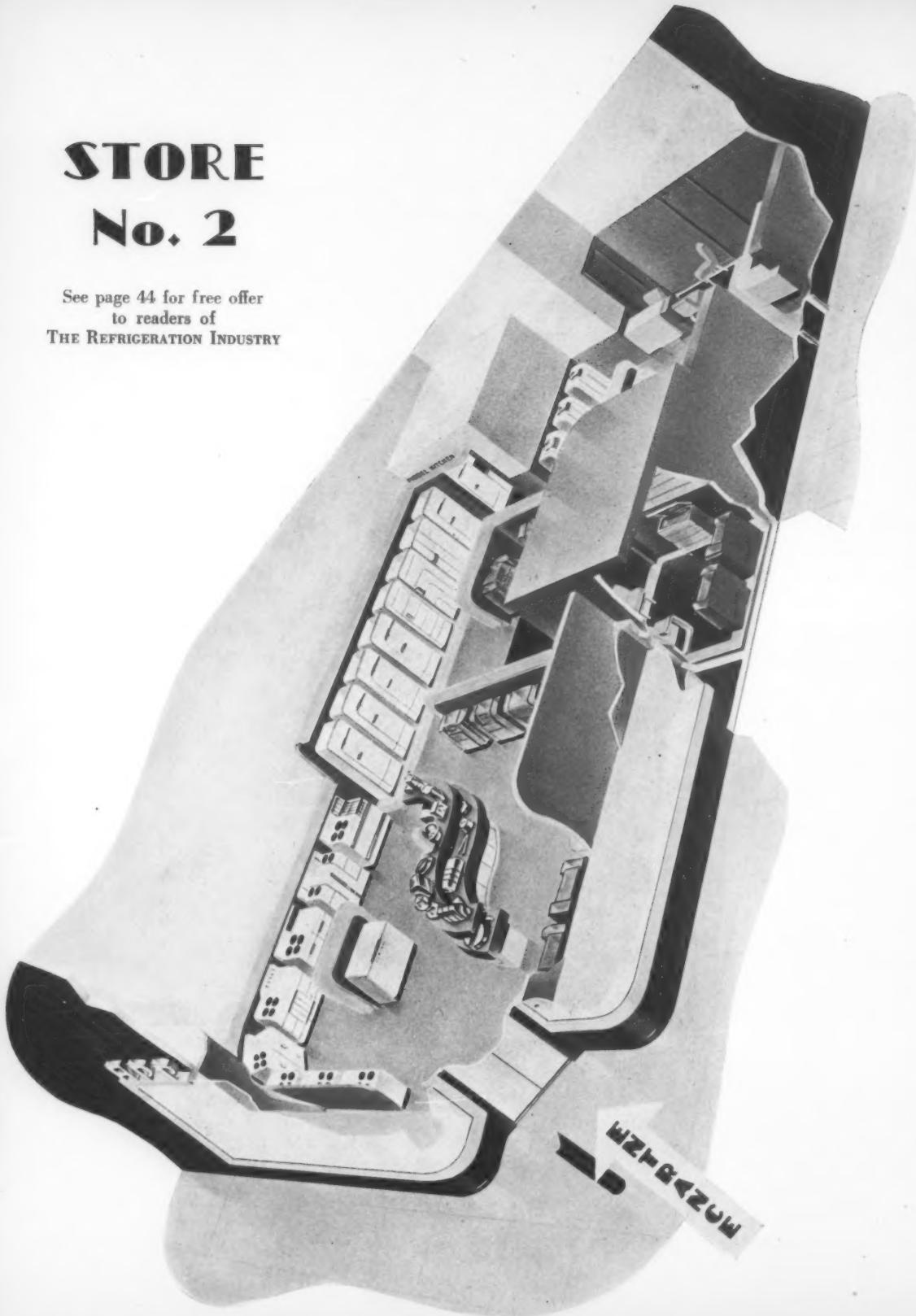
A handsome book in color describing these stores and fixtures in detail has been issued by the Admiral Corp., and through a special arrangement is available to REFRIGERATION INDUSTRY readers. Write the editor of Refrigeration Industry, 812 Huron Rd., Cleveland 15, today for your copy.



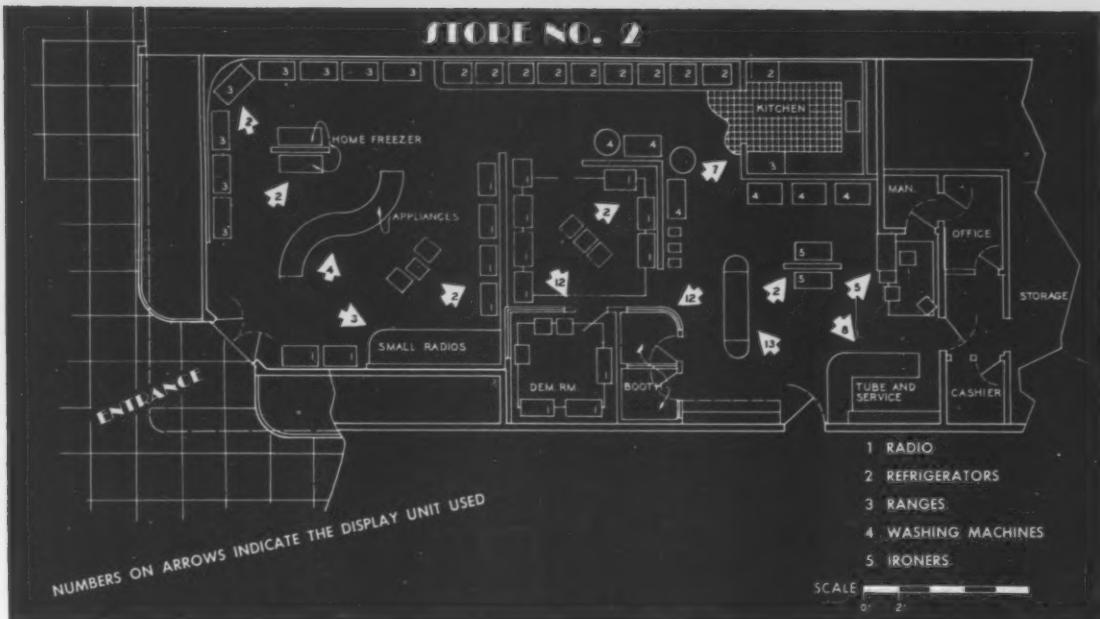
Here are two more of the display possibilities, the first for radios, the second a model laundry arrangement. For layout and floor plan of Store No. 2, please turn the page →

STORE No. 2

See page 44 for free offer
to readers of
THE REFRIGERATION INDUSTRY



MURRAY'S



Store No. 2, second of a series of four designed for the Admiral Corp. by George W. Walker, internationally famous industrial designer, is shown in the color photo at left. The floor plan, above, indicates arrangement of various store fixtures.

THREE has always been a direct relationship between floor traffic and sales volume. This relationship is likely to be accentuated, rather than diminished, in the refrigeration and electrical appliance of tomorrow.

In planning your store remodeling and modernization, experts advise keeping in mind the "self-service" motif . . . that is, creating the type of store layout which permits the customer to examine, touch, and get the feel of the merchandise without the necessity of undergoing a sales talk or demonstration. His interest in what you have to sell, aroused in this manner, is likely to be much more sustained than if he is required to make his examination with a salesman constantly at his elbow.

A SECOND very important point in favor of a self-service type of store arrangement is that it can be arranged to take fullest possible advantage of floor traffic, with displays of so-called "traffic" appliances and the record department, if there is one, so placed as to lead the customer interested in that type of purchase through the higher-unit-price sections—refrigerators, ranges, laundry equipment, and radios.

This type of store layout also permits operation with a smaller number of floor salesmen, even when traffic is comparatively heavy. The prospect who is allowed to browse around and make his own selection, in part at least, requires a minimum of actual selling time.

SHOWN on these pages is the second of a series of four examples of the best in modern store design, complete details of which are available to readers of THE REFRIGERATION INDUSTRY through a special arrangement with the originators of the Flex-O-Plan idea. Store No. 2, illustrated here, is a corner store, slightly larger than the first in this series of complete store layouts.

Outstanding attractions in this layout are a model kitchen and the listening booths. Note also, on the page opposite, the carpeted "room" for console radio sales convenient to the adjacent demonstration room. Space for cashier, bookkeeper and manager has been provided in the rear, and necessary arrangements can readily be constructed in the usual manner by your local builder.

NOTE how the home freezer display is cleverly spotted immediately beyond the entrance, where it is sure to attract a maximum of attention, and how the traffic path naturally leads the customer on to the lineup of electric refrigerators and past that to the model kitchen.

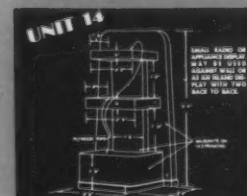
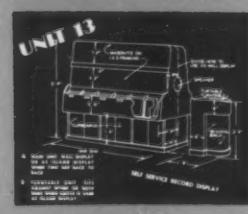
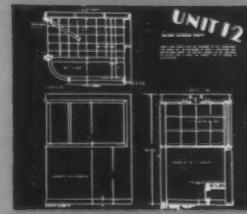
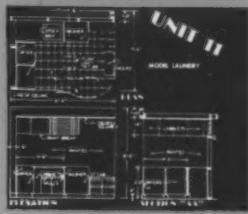
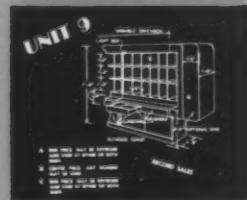
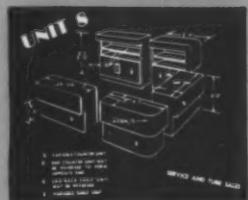
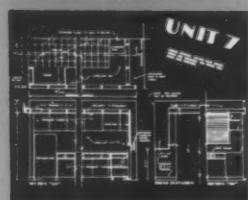
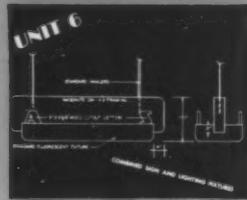
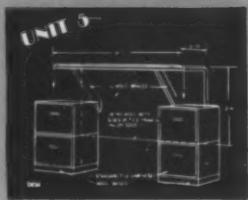
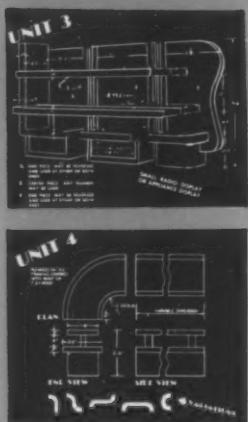
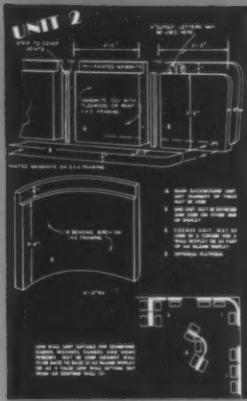
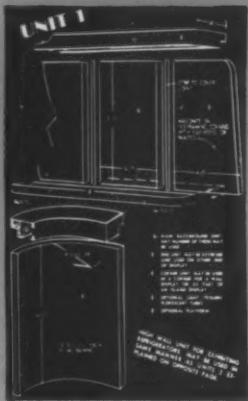
In planning your post-war store, you will be wise to keep uppermost in mind the idea of overall improvements. They may require five or ten years to complete, but when the job is finished the whole store will be a harmonious picture. It is poor procedure to improvise a little here and there, without a definite plan. A sound program is to create a budget, perhaps a part of a year's profit, for store modernization.

MAKE your store an individual one, taking into consideration the structure of the building, the space available, and the location.

Strive for utmost simplicity of the general store interior. Richness of design and detail should be brought in as accents, and then only as an integral part of some feature display. The peak of perfection in showrooms keeps a customer's interest below the eight-foot line.

Use lighting of the kind and quality that brings out all the value, color or quality of the merchandise that the maker put into it. And throw the light on the merchandise; it is more useful there than in the customer's eyes.

BASIC UNITS FOR USE IN POST-WAR STORES



SHOWN on this page are 14 of the basic units presented in a portfolio by the Admiral Corp. Most units are display fixtures which can be quickly and easily constructed. Unit 1 is a straight or curved fixture for refrigerators; Unit 2, a lower fixture, can be used for home freezers, etc. Unit 3 is designed for display of small appliances, while Unit 4 is a more flexible scheme for similar use. Unit 5 is a desk, Unit 6 a combined departmental sign and lighting fixture. Unit 7 is a model kitchen; Unit 8 a counter

for small part sales, Unit 9 is a record case. Unit 10 is an island fixture designed for display of a featured product. Unit 11 gives the layout for a model laundry, and Unit 12 the plan for a record-listening

booth, while Unit 13 is a self-service record rack. Unit 14 is a tall fixture for display of small appliances.

Space limitations naturally prohibit larger reproduction of these plans. The Flex-o-Plan book, however, which gives complete details for the use, and large size working drawings for construction, of these units, is available free up on request.

Write to REFRIGERATION INDUSTRY, 812 Huron Road, Cleveland 15, Ohio, today for your copy.

Refrigerated Concrete Speeds Dam Construction

(See photo on front cover.)

REFRIGERATED concrete—four and a half million tons of it—is safeguarding the towering walls of Fontana Dam and helping to speed up completion of one of the largest of the wartime TVA river projects.

The refrigeration installation will prevent the formation of millions of small cracks in the face of the dam which ordinarily occur over a period of years as the chemical heat in a large mass of concrete cools off. Such heat may rise as high as 30° above the surrounding temperature and may take 50 years to subside. Artificial chilling will cut this cooling time to two or three years.

According to Adolph A. Meyer, head civil designer for TVA here, the generation of heat in concrete begins during the mixing of the cement, water and chemical aggregate and is accelerated as the mass hardens. In summer, concrete temperature may go as high as 80° and in winter to 60° but since the new concrete is somewhat plastic, the expansion as a result of this heat causes no damage. However, as the expanded, hardened mass cools over the years, the shrinkage sets up stresses which frequently cause cracking over large areas.

ST. LOUIS SERVICE GROUP TO CONTINUE POST-WAR

The St. Louis Refrigeration Service Council, organized originally as a local cooperating group affiliated with the National Refrigeration Service Council, has decided to continue its activities after the national program has been discontinued, in the interest of raising the standards of refrigeration repair work in that area.

The name, St. Louis Refrigeration Service Council, has been formally registered with the Missouri secretary of state's office, and officers have been elected as follows:

President: James A. Daniels, City Refrigeration Service; vice president: Al Siebert, St. Louis Butchers Supply Co.; secretary: C. A. Tanner, Frigid Refrigeration Service; treasurer: Ed Weber, West Side Refrigeration Service. Directors include R. L. Fridley, Schwander Appliance Co.; E. B. Moore, Pevely Dairy Co., and Earl

Miles of lateral one-inch piping stretched across the face of the dam walls, from the ground to the top of the 480-foot spillways, now cool the concrete with an average of nearly 4,000 gallons of chilled water a minute. Approximately 250 tons of refrigeration a day are supplied by two



These pipes, carrying chilled water, guard the dam's walls against cracking.

York compressors on one system, and a second system pumps cool river water direct to the concrete by means of four pumps. Chilled water supplies ranges in temperature from 40 to 50° with the low point set at 35° in winter.

In order to prevent an excessive heat problem, Fontana Dam is built up from small blocks of lifts of con-

crete, each five feet high and 50 feet long with joints in between to provide for expansion. Lateral cooling pipes are spaced up the side of the structure about six feet apart. In unusually warm weather, size of individual blocks is reduced to two and a half feet in height in more critical zones to further reduce the danger of cracking. Without any form of artificial cooling, the blocks in the dam would have to be made even smaller at a greatly increased cost and loss of time.

Because the temperature of the concrete is a vital factor in protecting the dam from excessive cracking, interior concrete temperatures are constantly measured by inserting portable thermometers into pipes imbedded in the walls at intervals of 25 feet in some sectors. This data enables engineers to vary the flow of cool water to various sections to keep a constant balance.

Fontana Dam is the largest of the TVA tributary storage projects and will increase war-needed power production in the Little Tennessee watershed by two billion kilowatt hours during a year of operation. More than 80 per cent completed now, the dam is expected to begin work next spring.

Taylor, G-E Appliance Service Center. Wm. P. Mackle of Union Electric Co., coordinator, will continue to assist the organization as an advisor. concurrent series of educational meet-

Present plans are to conduct two concurrent series of educational meetings monthly, the first for newcomers to the industry, which would cover basic instruction in refrigeration, and the second for experienced men, covering advanced training in motors, compressors, valves, controls, and so forth.

SUPERIOR TO OPEN CHICAGO WAREHOUSE

Superior Valve & Fittings Co., Pittsburgh manufacturer of valves, manifolds, accessories and fittings, is opening on Feb. 15 an office and warehouse at 565 West Washington Blvd., Chicago, to serve customers in Illinois, Wisconsin, Minnesota, Iowa, Missouri, Kansas, Nebraska, Colorado, Indiana, western tip of Ken-

tucky and the west half of Michigan.

Irving A. Wilson, present Superior midwestern representative, has been appointed manager of this operation and will continue to maintain field contacts.

Thomas E. Cunningham, who has been transferred from the factory, will be assistant manager and have charge of the office and warehouse, which will be a stocking and shipping point for standard catalogued items.

JOBBER HEADQUARTERS MOVED TO CINCINNATI

Headquarters of the National Refrigeration Supply Jobbers Association have been established in Room 202, Paramount Building, 920 E. McMillan, Cincinnati, reports H. S. McCloud, newly elected secretary. Miss Mary E. Silvers, who had been associated with the former secretary's office in Chicago, has moved to Cincinnati to continue her work with the association.



Official U. S. Navy Photo

SAFE AND DRY!

Back to their ship paddle these amphibious crews in their sturdy rubber boats. These light, capacious craft are easily maneuvered and are known for landing their loads safe and dry.

The servicemen of refrigeration have long relied upon TZ for successful trips, when measures taken must be safe and resulting conditions dry.

TZ destroys water chemically and neutralizes acid.

"A Little Goes a Long Way and Does a Big Job."

THAWZONE
Fully Protected by U. S. Patent
The PIONEER FLUID DEHYDRANT

**HIGHSIDE
CHEMICALS CO.**
195 Verona Ave.,
NEWARK 4, N. J.

DOLE
Vacuum
COLD PLATES

Maximum Refrigeration Efficiency

Trade Mark Reg. U. S. Pat. Off.

for all

**REFRIGERATION
PURPOSES**

DOLE REFRIGERATING COMPANY
5910 N. Pulaski Road, Chicago 30, Illinois.
N. Y. Branch: 55 West 42nd Street, New York City 18, N. Y.

SELL YOUR SERVICE . . .

Continued from page 16

the service man, cost record, and billing copy on charge sales.

Service record sheets are filed each month in a *job service envelope* (Form 2), on the face of which the jobs enclosed are summarized for sales, labor, materials, mileage and labor hours. The monthly summary also shows the margin of profit, overhead allotted to the service department and net profit. If results are off the beam, check back. Here's how:

Start with the overhead percentage as shown in summary on the job envelope. Let's suppose it figures 30 per cent of sales. Check each service job against this percentage. Say you charged \$20 to do a job, which called for \$9 in materials and six labor-hours at \$1 an hour cost to you.

30 per cent of \$20 selling price is	\$ 6.00
Materials used	9.00
Labor—6 hours at \$1 an hour wage cost	6.00
Total cost of job	\$21.00
Selling price	20.00
Loss on job	\$ 1.00

Puts Tracer on Losses

By analyzing all jobs in this way, you can trace profit or loss to source. If analysis shows that many jobs have been done at too low a net profit, or at a loss, then try to cut overhead, get greater efficiency out of your service man through the use of better equipment, etc., or increase prices.

By checking the time spent on service jobs, you can get a good idea of the average time required to do the work, and gear your future prices accordingly. Sometimes an unusual condition will compel a service man to spend a longer-than-usual time on a job. In such a case, he should write an explanation under "Remarks" on the reverse side of the form.

By means of this form, you can set up standard costs on the different type services, so that you can price profitably, not only on time and materials estimates, but on flat price sales. Without a backlog of these ex-

FORM 2: JOB SERVICE ENVELOPE

Month of.....	Year.....
Sales for month.....	\$.....
Cost of labor.....	\$.....
Cost of materials.....	\$.....
Prime cost	\$.....
Margin of profit on service sales.....	\$.....
Overhead charged to service department	\$.....
Net profit on service sales	\$.....
Labor hours charged to jobs.....	Rate.....
Labor cost	\$.....
Payroll expense of service department.....	\$.....
Non-productive labor	\$.....
Mileage for month—Truck cost per mile \$.....	
Total truck cost	\$.....

This form can be typed on a large envelope or an ordinary business envelope. If all labor hours paid for by the maintenance man are charged for on the service record sheets, payroll expense will equal labor cost. If service payroll expense is more than labor cost the difference is non-productive labor.

STUTZMAN IS MANAGER OF 'RSD,' LOS ANGELES

Merle F. Stutzman, who has been assistant manager, has succeeded Peter H. Askew as manager of Refrigeration Supplies Distributor, refrigeration parts and supplies jobber in Los Angeles and San Diego, Calif.

KING CO. MOVES

King Refrigeration Co., manufacturer of laboratory refrigeration equipment, has moved its plant and office to LaCrescent, Minn.

perience figures, you work in a fog.

If you pay straight salaries to service men, the labor hours as totaled for the month will tell you if your men made each hour productive. If you sold their labor for less than you paid them, the difference is non-productive labor, probably spent cleaning up around the shop, waiting for materials not in stock, etc. Keep down non-productive time if you want maximum profits. Form 2 helps you keep track of it.

If costs increase, the summary will disclose this fact, so that you can make upward adjustments in selling prices or take other steps to remedy matters. By means of this monthly summary on the service envelope, you are always working on current service costs, which is important today, because costs are apt to be unstable for some time to come.

Detailing Job Costs

You have the same problem, that of setting a price in advance of the sale and computing costs after the sale to determine profit, whether you estimate time, materials, overhead and net profit on each job individually or sell at flat prices.

Unless you analyze your costs and use them as experience figures to guide you in setting future selling prices, you are not doing a good costing job.

If you want to detail your job costs, make up a *monthly detail of service profit or loss*. Total the profit or loss for the month and enclose in the service envelope. The total should agree with the total profit or loss shown on the job envelope summary.

This gives you a bird's eye picture of the comparative profitability of different jobs or different type jobs. It will help you equalize profit on all jobs, and either eliminate "weak-sister" services or make them pay.

SPRAGUE Universal MOTOR-STARTING CAPACITORS

Write for Sprague Booklet C-352 "A New Complete Story on Motor-Starting Capacitors." Get the facts about the small, Sprague Series 3500 Universal Motor-Starting Capacitors which enable you to make almost any replacement from a very small stock. They fit anywhere—are more dependable than the big old-style units they replace — are available for immediate shipment from 24 mfd. to 350 mfd., 110 V. A-C.

SPRAGUE PRODUCTS CO., North Adams, Mass.

Jobbing distributing organization for products manufactured by The Sprague Electric Co.

**Prompt
deliveries !**



**This
ONE SMALL
UNIT REPLACES
ALL OF THESE !**



**Proven
Pittsberg
Products**

**SULPHUR
DIOXIDE**

**METHYL
CHLORIDE**

**METHYLENE
CHLORIDE**

**Proven for
uniformity, and
low moisture
content**

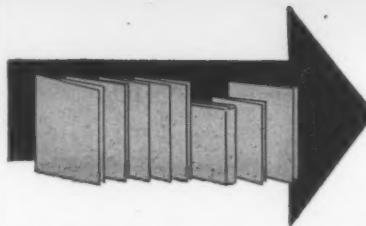
Your inquiries on other
chemicals are invited

**PITTSBERG
CHEMICAL CO.**

3100 East 26th St., Los Angeles 23, Cal.

SALES AGENTS FOR:

KINETIC CHEMICALS
FREON 11-FREON 12
FREON 22



**Useful
Literature**

The publications featured on this page were written by experts. They are FREE publications. To obtain these write to THE REFRIGERATION INDUSTRY, 812 Huron Road, Cleveland, 15, Ohio. If there is some delay in receiving the material requested, please understand that this is due to our operating with a minimum staff. We shall put through all requests as rapidly as possible.

110—Driers . . . Information on the DFN system of dehydrators, strainers, filters, and neutralizers. Issued by McIntire Connector Co.

111—Diaphragm Packless Valves . . . Descriptive bulletins on its patented diaphragm packless valve. Issued by Kero-test Mfg. Co.

112—Constant Voltage Transformer . . . A bulletin (CV-103) giving complete electric and mechanical specifications of its hermetically sealed constant voltage transformer for through-chassis mounting, designed for refrigeration control applications. Of interest to manufacturers and design engineers. Issued by Sola Electric Co.

113—Catalog . . . A new, fully illustrated catalog describing its complete line of dryers, valves, manifolds, fittings and other products for refrigeration application. Issued by The Weatherhead Co.

114—Coils and Coolers . . . A bulletin available from Bush Mfg. Co. describing the products and plans it has in process to meet post-war demand.

115—Replacement List . . . A stock list of replacement units which it has available for commercial compressors of various types, available from Rotary Seal Co.

116—Compressors . . . A catalog illustrating and giving specifications of its complete line of refrigeration compressors and condensing units. Offered by Copeland Refrigeration Corp.

117—Plate Coils . . . Information on its lines of plate coils, forced convection unit coolers, and panel coolers. Issued by Kay Products Co.

118—Motor Service Plans . . . A booklet issued by General Electric Co. describing its factory service plans for fractional horsepower electric motors.

119—Leak Finder . . . Complete information on the properties and use of "Visoleak" leak detection fluid. Offered by Western Thermal Equipment Co.

120—Torches . . . A booklet on "101 Uses for Prest-O-Lite Air-Acetylene Torches," available from the Linde Air Products Co.

121—Motor Starting Condensers . . . A bulletin, issued by Sprague Products Co., listing information on the proper use of capacitors with capacitor-motors, and advising proper units for specific applications.

122—Locker Data . . . Two brochures, issued by Salem Engineering Co., giving pictorial views and general description of its patented automatic and conventional walk-in type equipment for locker plants.

123—Catalog . . . A new edition of its Digest No. 129 containing photographs and listings of its electrical products, including safety switches, service equipment, multi-breakers and other circuit breakers, motor control and pressure switches. Issued by Square D Co.

MAIL THIS COUPON FOR FREE LITERATURE

Refrigeration Industry, 812 Huron Road, Cleveland 15, O.

I should like a copy of the literature listed below:

NO. _____ NO. _____ NO. _____ NO. _____

NAME _____ POSITION _____

FIRM _____

MAILING ADDRESS _____ HOME
 BUSINESS

CITY _____ ZONE _____ STATE _____

2-45

 Happy Tales of
Trouble-Free Performance



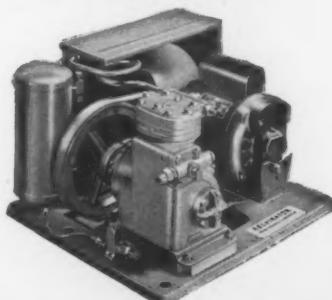
1st Cook: "What's going on here?"

2nd Cook: "Why, even the vegetables are happy over our new Kelvinator Condensing Unit!"

For 30 years Kelvinator Condensing Units have given *more* dependability, *more* economy, *more* performance . . . that is the reason progressive service men *always* specify Kelvinator.

Kelvinator distributors and zone offices stock a complete line of refrigeration supplies.

See them for your installation material such as valves, fittings, dryers, etc.



Kelvinator

CONDENSING UNITS
SEALED • OPEN



FOR YOUR HOME—REMEMBER KELVINATOR REFRIGERATORS, ELECTRIC RANGES, WATER HEATERS AND HOME FREEZERS



Over the COUNTER

MOST of us in this business do a lot of talkin' about post-war plans—but as near as I've been able to figure it, in a good many cases

that's just about as far as it gets . . . talk, just talk.

We're goin' to do this, an' that, an' the other thing soon as material con-

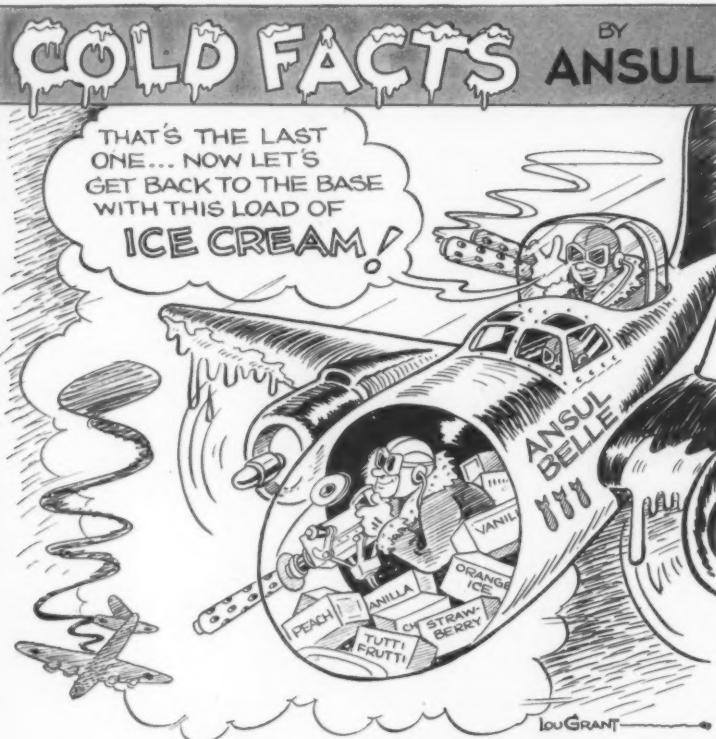
ditions pick up a little—just like that window that's stickin' at home, and that we'll get around to fixin' . . . tomorrow. Puttin' things off comes natural to all of us, I guess—and I know that, myself, I'm mighty thankful that some of the things I talk about doin' don't have to be done right then.

But all the fellows in this refrigeration business aren't that sort, I find out the other day, when I'm gassin' with Bob Hawker while I'm puttin' together a fair-sized order for him.

"How's your post-war plannin' comin' along, Bob?" I asks, idle-like, expectin' all the time to get some off-hand answer like "swell!" or "pretty good, I guess," from him, and a quick change of subject.

Well, he said, "swell!" all right—Bob's the sort of guy who could say it, and mean it, too—but he followed through with the story of a plan he's already workin' on . . . an' I think it's worth passin' along. There's something in it for all of us who're expecting to cash in later on the customer contacts we're makin' now.

Bob's buildin' up a prospect file on new coils, condensing units, automatic controls, and all other equipment he



IN THE STEAMING SOUTH PACIFIC, BOMBER CREWS OFTEN TAKE ALONG A GALLON OF ICE CREAM MIX WHEN THEY CALL ON THE JAPS. SUB-ZERO COLD AT HIGH ALTITUDES FREEZES THE MIX FOR AN ICE CREAM TREAT WHEN THEY RETURN.

YOU CAN'T BEAT YANK INGENUITY, AND WHEN YOU GET DOWN TO EARTH THE **COLD FACT** IS THAT FOR REFRIGERANTS YOU CAN'T BEAT **ANSUL LIQUID SULFUR DIOXIDE** AND **ANSUL LIQUID METHYL CHLORIDE**—IMMEDIATELY AVAILABLE.

Our technical book, "Ansul Refrigerants" (3rd edition) available upon request

Ansul Chemical Company, MARINETTE, WIS.

"Now in our 30th year"

AGENTS FOR KINETIC'S "FREON-11", "FREON-12" AND "FREON-22"

AMINCO OIL SEPARATORS



Aminco Oil Separators protect compressors by maintaining correct oil level in crankcase and by excluding oil from refrigerant stream; they enable coils, condensers, valves and dehydrators to function most efficiently.

These oil separators are made for jobs from $\frac{1}{2}$ H.P. to 120 tons and are used everywhere, ashore or afloat, where efficient refrigeration is desired.

Full descriptive bulletins on request.

AMERICAN INJECTOR CO.

1481 - 14th AVE. DETROIT 16, MICH.

Van D Clothier, 1915 E. 16th, Los Angeles
George L. Boone, Rm. 759, 1775 Broadway,
New York

W. H. Cody, Santa Fe Bldg., Dallas
Export: Borg-Warner, 310 So. Mich., Chicago

figures his customers will be in the markets for, or that they've told him they'd like to install as soon as the equipment is to be had.

He's got a regular card-index file, and he's keepin' it up to date . . . name of customer, type of equipment he's usin' now, and what, if any, changes in equipment or new equipment the customer (or Bob) thinks are indicated. Bob's not bankin' on his rememberin' it, or havin' the customer remind him about it later on. He's getting it on file—now.

Up to now, of course, Bob's had several places he could put each piece of equipment that he could get his hands on. "But I figure," he says, "that the day ain't too far off when I'll find a coil or a machine in stock here—and I don't expect to trust my memory to tell me where I can sell it.

"Every day after I've finished my calls, I come back to the shop and jot down on these cards the new equipment I think I can sell later on. I put down something like 'Jones Grocery—want new unit on walk-in box, $\frac{3}{4}$ h.p., soon as available', or 'Smith's Store—want new blower coil to replace old boiler type' . . . just a word or two that tells me the whole story."

I think Bob's got something there.

Why the Trend Is Strong to CHICAGO SEALS and VALVE PLATES



Chicago Seals and Valve Plates make a better servicing job on all refrigerators, in less time, at less cost, at more profit . . . and more service men and more jobbers are finding out this fact every day.

CHICAGO SEAL CO.
20 North Wacker Drive, Chicago 6, Ill.

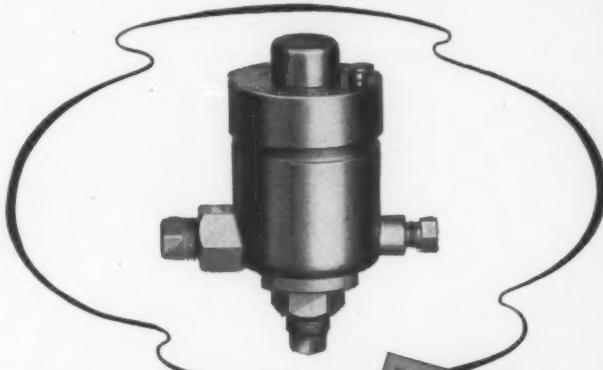
The service man who doesn't follow some sort of plan like this is goin' to wake up some day and find somebody else calling on his customers and sellin' them new equipment . . . an' all he'll have out of the deal is the labor for installin' the stuff.

Before too long, the emergency servicing work we're all doin' now is goin' to be replaced with sales of new equipment — improvements and enlargements of refrigeration space, or some new additions, like low temperature boxes, and other jobs.

Now's the time for the refrigeration service man, who's always the first to know about what his customers are plannin' to do, to go "on record", so to speak—to make a list, not only of what his customers tell him they're goin' to want, but also of the improvements he thinks ought to be made in their refrigeration set-ups. Then, when equipment can be had, he'll be on the job ahead of the crowd, and the business'll be his.

There'll be no slump for the service man who starts—right now—to do a "post-war planning" job like that.

CONSTANT CONTROL WITH Temprite VALVES

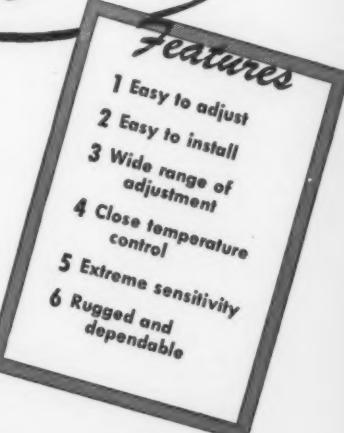


WHEN Temprite Constant Pressure Two-Temperature Valves are used, constant temperatures are assured at all times and the performance of the refrigeration system is greatly improved.

Sensitive operation, perfect sealing seat and rugged construction are essential features for a satisfactory two-temperature valve and it is these features that account for the Temprite Valves' unfailing performance.

The Temprite Two-Temperature Valve is an essential part of any multiple type refrigeration system and is also recommended for use on single applications where closer and more constant regulation is required than can be furnished by the condensing unit control switch.

No refrigerating system is better than its control; that's why the Temprite Constant Pressure Valves are preferred by refrigeration engineers who recognize their outstanding performance in general commercial work.



For complete specifications and prices on Temprite's Constant Pressure, Two-Temperature Valves write or wire our Sales Department today.

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous
41 PIQUETTE AVENUE



Liquid Cooling Device
DETROIT, MICHIGAN

BACK AGAIN



TEXACO CAPELLA OILS FOR ALL REFRIGERATION AND AIR CONDITIONING EQUIPMENT ARE AGAIN AVAILABLE IN RESEALABLE, ATTRACTIVE 1-QUART, 1-GALLON AND 5-GALLON SEALED CANS.

Easing of restrictions on containers now makes it possible for you to get famous *Texaco Capella Oils* in the same easy-to-handle packages that brought increased sales, bigger profits to jobbers, dealers and service men everywhere before the war.

Texaco Capella Oils are made to meet the operating requirements of every make of refrigerating equipment, every type of refrigerant. Because of their demonstrated ability to do a real lubrication job — to assure efficient refrigeration — *Capella Oils* are used and recommended, or approved, by leading manufacturers of air conditioning and refrigeration units.

Texaco Capella Oils come in six different viscosities, all with exceptionally low pour points. They are dehydrated and highly stable. Careful selection of crudes

and a superior refining process assure truly outstanding products. *Capella Oils* do not react with refrigerants, new or old, and are strongly resistant to breakdown, gumming and sludging. These qualities assure satisfaction in use, with resulting good-will and repeat business for you. Texaco refrigeration lubrication charts showing application and use of these lubricants available upon request.

A Texaco representative will gladly show you how to increase your sales of these quality products, available through more than 2300 Texaco distributing points in the 48 States. Phone or write the nearest one.

★ ★ ★

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO Capella Oils FOR ALL AIR CONDITIONING
AND REFRIGERATION EQUIPMENT

THIS IS THE WAY . . .

Continued from page 19

A special bowl and jacket was made for the mixer, which uses five barrels of flour at a time. To us was given the job of installing the mechanism for refrigeration. This mechanism maintains the temperature of the dough so it comes out at a uniform temperature of 79° F. It also keeps the water in the mixer at a uniform temperature of 40° F.

"We installed all the lines and figured out and placed the controls, valves, solenoids, etc., so as to secure the proper refrigeration. This is a great improvement over the method formerly used—chipped ice. A large amount of this was required each day. In addition, foreign matters in the ice often got into the dough and spoiled it. The new arrangement makes for a uniform product day after day."

Business is Good

At present, the company does little promotional work—it isn't necessary. However, newspaper ads are carried regularly. These are of small size—one column by two inches. They are all institutional in character, and simply state the business of the firm, listing different makes of refrigerators which it is equipped to rebuild and repair.

"We don't want to do too much advertising right now," says Mr. Mathis. "We have all we can do and we prefer not to get too much work in advance. This summer we have had as many as 75 to 100 calls ahead, and that is too many."

Competent Men Scarce

"Our biggest problem has been that of sufficient help. We could easily have had five times the business if help had been available—that is, the right kind of help. We will tolerate no slipshod work, and the kind of help we want is difficult to secure.

"When household refrigerators are again on the market, we are looking for a big business in sales. Our wartime service work on all makes of refrigerators has given us the confidence of our customers, and has provided us with a big list of prospects for new refrigerators that will prove a great asset to us in our post-war business."

THE PRACTICAL Refrigeration Engineering MANUAL . . . by Harold Smith

VI. Meat Packing Plants

PACKING plants depend greatly on refrigeration for their operation. A large packing plant has numerous refrigerated rooms used for processing and the protection of the products. A completely equipped plant utilizes:

1. A chilling room, in which warm carcasses are placed to remove animal heat and cool the meat down to storage temperatures.
2. A storage or aging cooler, where the carcasses are stored after the removal from the chill cooler.
3. A service cooler, for storage when ready for delivery to the customer or dealer.
4. A pickling cooler, where special cuts are stored for pickling and curing processing.

CHILLING COOLER

Usually, the fresh killed carcasses are placed in the chilling cooler for a period of from twelve to twenty-four hours. During this period of time the meat is cooled from a temperature of approximately 80° F. to a storage temperature of from 35 to 38° F.

In the chilling cooler, most of the specific heat is removed from the carcasses and this represents the major part of the refrigeration load in this cooler.

In making a survey of the refrigeration requirements, it is essential that accurate information regarding the number of pounds of meat to be cooled each day is obtained, so that adequate coil surface is installed to handle the work in the time allowed for it. It is also necessary to know the temperature of the meat going into the cooler and the temperature to which the meat is to be cooled down.

HEAT FACTOR VARIES

As the specific heat factors vary with different kinds of meat, the number of pounds of each kind of meat to be chilled is necessary for accurate load requirements.

Once all this information has been secured, it is only necessary to multiply the number of pounds of each kind of meat to be chilled by the specific heat factor and again by the number of degrees temperature the meat is to be cooled down.

This gives the specific heat or "product load," and this figure, divided into the number of hours to be allowed for cooling, gives the refrigeration load requirements per hour for the product cooling.

Add to this figure the heat leak and service load for the chill cooler, and the total refrigeration requirements for the cooler are known.

Ceiling type, conventional forced convection evaporators work very efficiently in this operation, as the fast circulation of cold air lowers the temperature of the warm carcasses quickly and the compactness of this type evaporator enables much of the ceiling space to be used for track to move the heavy carcasses in and out of the cooler.

FLOOR TYPE UNITS

In large chill room applications a floor type forced convection unit, with distribution ducts arranged to blow cold air to all sections of the cooler, is sometimes advantageously employed. However, this type installation usually greatly increases the cost of the system because of the high cost of building the duct work. More ceiling area is also used, which is frequently a problem when space is at a premium.

Many installations have been made with standard cross fin coils and drip pans suspended from the ceilings, but here again the space required is a problem. Also, the cost is increased because of the large amount of coil surface required, and the cooling efficiency is lower because of natural convection which does not handle the heat removal as rapidly as forced convection.

CLOUD AND POUR . . .
Continued from page 17

insulated from one another, and each has its own thermostatically controlled expansion valve, solenoid and thermostat. Thermostatically-controlled expansion valves with oversized diaphragms and specially-charged bulbs were designed specifically for this application.

A self-contained, two-stage, 1 H.P. air-cooled, Freon-12 condensing unit

Bare pipe coils, installed either on the ceiling or the side walls, are also occasionally used, but again they do not measure up to forced convection for efficiency and usually require excessive space for installation that is needed more for track or other purposes.

High relative humidity conditions prevail in the chill room, and best results are usually obtained by using evaporators with sufficient capacity to handle the total chill room load on a 10 to 15° temperature difference. Most large packing plants operate on a steady daily production basis, but the smaller plants kill and chill meat usually only two or three days of the week. To assure adequate refrigeration capacity a maximum daily load figure should be used as a basis for establishing of the refrigeration load.

AGING AND STORAGE

The aging and storage cooler usually carries the cooled carcasses for a period of ten days to two weeks, during which time the meat is aged, which adds to its quality, tenderness and texture. The aging coolers are operated at temperatures of from 35 to 38° F. Since the carcasses are brought in from the chill cooler at these temperatures, little or no specific heat is removed in the aging cooler; so the load is largely heat leak and service load.

The aging cooler is usually several times larger than the chill cooler, as the meat is accumulated in the aging cooler for a longer period of time. The larger wall area of the aging cooler results in a sizeable heat leak load, which should be carefully figured.

The service load is usually quite heavy, as workmen are constantly entering and working in the room, loading and unloading the products, trimming the carcasses, etc. Careful engineering of the heat leak and service load will provide dependable load figures for this particular cooler. In all large plants, tracks are

using a suction heat exchanger as well as a liquid sub-cooler provides the necessary refrigeration. Thus, excessive frost-back during the initial "pulldown" is prevented. A pressure throttling solenoid control keeps the suction pressure at a safe operating point for the motor. This is necessary because the motor is generally fully-loaded at 0 p.s.i. gauge suction pressure.

Despite difficulties encountered in procuring materials, the cabinet was designed and fabricated in 30 days.

used to move the carcasses in and out, so ceiling space is at a premium and evaporators that do not interfere with the track system are necessary.

Floor type or ceiling type forced convection evaporators, as a rule, fit the need better than fin coils with pans, because of their more compact characteristics. High relative humidity is very essential in the aging cooler, to eliminate shrinkage and dehydration of the carcasses while in storage. Any appreciable dehydration causes a serious loss of weight (and profit) in the meat, besides causing a discoloration of the meat which lowers the quality.

EVAPORATOR AREA

Evaporators with enough surface to handle the load on a 10 to 12° temperature difference should be used in this room. With proper load figures and sufficient evaporator surface, the meat can be aged with little or no dehydration and loss of weight.

On many aging room installations evaporators of cross fin coil or bare pipe coil construction are used, mounted on the side walls of the coolers. Many of these installations are quite satisfactory, but generally the forced convection type evaporator is the most satisfactory all around for this work.

PICKLING COOLER

The pickling cooler, like the aging cooler, is used for the curing of meat. The refrigeration load consists largely of heat leak and service load. In this cooler, meat is cured in brine or other salt solutions, over a period of weeks, and temperatures of from 35 to 38° are usually used.

The forced convection evaporator is usually best adapted for this work, and should be figured with a capacity to handle the total load on a 15° temperature differential. Cross fin coils or bare pipe coils may be used in this cooler, if desired.

(To be continued next month.)

Electrimatic Regulating Valves

Automatic control and regulating valves for Freon, Methyl Chloride and Ammonia. A large variety of sizes and types available for practically any refrigeration requirement.



WL water regulating valves for Freon, Methyl, or Sulphur. $\frac{1}{2}$ " orifice and $\frac{1}{2}$ " FPT. Brass body construction. Large capacity—no chatter.



WP water regulating valves are available in $\frac{1}{2}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " FPT sizes. Brass body construction for Freon, Methyl or Sulphur. Easy adjustment.



WK water regulating valves are De Luxe Pilot Operated Modulating valves. Iron body, simple adjustment. Available in sizes ranging from $\frac{1}{2}$ " to 2" FPT.



WR regulating valves for Ammonia are diaphragm operated and highest quality corrosion resistant materials are used. Available in sizes ranging from $\frac{1}{2}$ " to 2" FPT.

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2100 INDIANA AVENUE

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SILICA GEL . . .

Continued from page 26

various relative humidities. Suggested minimum values are listed in the following table:

Moisture Pick-Up	Relative Humidity of Air
5.75%	10%
11.00%	20%
21.75%	40%
33.25%	60%
36.80%	80%
38.25%	100%

4. The dehydrating agent should be of the proper particle size. Material known commercially as 14-20 mesh has been found to give the most desirable balance between resistance to flow and channelling tendency. Smaller particles result in dehydrator design of awkward proportions or high frictional resistance, whereas larger particles allow refrigerant channels to form thereby preventing the desirable intimate contact between gel and refrigerant.

5. Silica gel should resist abrasion. Dusting will result in stoppage or plugging of dehydrator screens, unless a vibration or abrasive resistant product is used. Tests incorporating the use of copper discs to provide impact on the material, held within vibrating sieves with subsequent measurement of the broken fines, measure this property.
6. Material should have density limitations, otherwise manufacturers of dehydrators could not rate them on cubic contests, and be assured that they contain a uniform weight of desiccant.

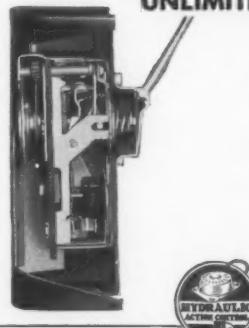
The six foregoing qualifications are not new in the evaluation of silica gel. These tests have been used for a number of years, and are recognized as standard by authorities.

Since the use of silica gel has been widely accepted in the refrigeration field, the adoption of an adequate standard for the material would benefit the industry as a whole.



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* HEAVIER, LONGER-WEARING PARTS possible because of UNLIMITED POWER OF HYDRAULIC-ACTION



8 EXCLUSIVE FEATURES OF WHITE-RODGERS HYDRAULIC-ACTION TEMPERATURE CONTROLS

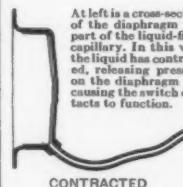
1. May be mounted at any angle or position, above, below or on level with control point.
2. Hydraulic-Action principle incorporating solid-liquid-filled bulb and capillary provides expansion force comparable to that of a metal bar.
3. Diaphragm motion uniform per degree of temperature change.
4. Power of solid-liquid charge permits unusually sturdy switch construction resulting in positive contact closure.
5. Heavier, longer-wearing parts are possible because of unlimited power.
6. Dials are evenly and accurately calibrated over their entire range because of straight-line expansion.
7. Controls with remote bulb and capillary are not sensitive to changes in room temperature. Accuracy of control is not affected by temperature changes in surrounding area.
8. Not affected by atmospheric pressure. Works accurately at sea level or in the stratosphere without compensation or adjustment.

With the terrific power of Hydraulic-Action to actuate the control, tough, strong, hard-driving parts can be built into White-Rodgers temperature controls.

That means a control with long life, free from trouble calls due to breakage or adjustment needs. Under even the hardest, roughest use, White-Rodgers Hydraulic-Action controls can take it and come back for more.

WHY HYDRAULIC-ACTION CONTROLS ARE LONGER-WEARING UNDER HARDEST USE

At left is a cross-section of the diaphragm and part of the liquid-filled capillary. In this view the liquid has contracted, exerting pressure on the diaphragm and causing the switch contacts to function.



In this cross-sectional view, the liquid charge of the capillary has expanded with a rise in temperature. The positive force of this hydraulic action forces the diaphragm to move away and causes the switch contacts to function.



Illustration of the White-Rodgers diaphragm body, the actuating element of every White-Rodgers temperature control. It is so designed as to exert full pressure at the point of contact with the switch mechanism.



WHITE-RODGERS ELECTRIC CO.

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Controls for Refrigeration • Heating • Air-Conditioning

New PRODUCTS

Postwar Farm Units

International Harvester Co's refrigeration division will produce and market in the postwar period a complete line of refrigeration units, designed to meet needs of the farm market.

The company's refrigeration line before the war included milk coolers and walk-in coolers, the latter being large-capacity units which serve both



as milk coolers and as refrigerators for other farm produce. These units are being completely redesigned and restyled, and will be electric-powered.

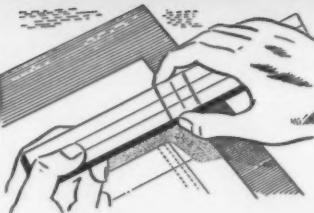
In addition the company will offer two new types of refrigeration, a line of "zero chests" for the freezing and storage of perishable foods, and a line of combination units, offering both zero-temperature and ordinary-temperature refrigeration in the same chest. These will be produced in a variety of sizes and models.

Since the new line is in the pre-production stage, no data as to prices are now available.

New Type Air Duct

A new type of portable air duct—flexible but non-collapseable—has been developed by Du Pont engineers for either blower or exhaust systems.

Non-collapseable "Ventube" is a sleeve or tube of standard "Ventube" impregnated cloth, either regular or fire resistant, with a tempered steel helical spring inside it. Thus the



maximum airflow opening is maintained, regardless of whether the duct is bent sharply or the system is blowing or sucking air. When bent to an angle of 180 degrees it will exhaust eight times more air than the old style tube.

If the covering of the new "Ventube" is burned by a welding torch or cut through it can be patched like an automobile inner tube.

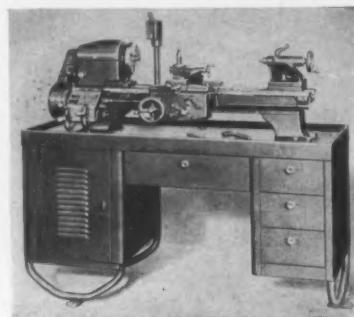
Gear Cabinet Lathe

Combining the features of the standard Logan quick change gear lathe in a compact cabinet, the new Logan No. 825 lathe is adaptable to tool room work, for maintenance, for training, or for production.

The carriage with friction feed automatic apron travels over a bed

that is ground to within .0005" of absolute accuracy. Total run-out of its headstock spindle 12 inches from the bearings is less than .001". The lead screw is held to within .002" in 12 inches.

The spindle turns on a double row of precision ball bearings, and at 40



other vital points friction is minimized by self lubricating bronze bearings. All moving parts and gears are completely enclosed. Power plant and underneath drive are enclosed in the left compartment of the four-drawer cabinet. A multiple V-belt drive transmits power from cone pulley to spindle.

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1 pint bottle	3.00	24 bottles
1 quart bottle	5.00	12 bottles
1 gallon can	16.00	6 cans

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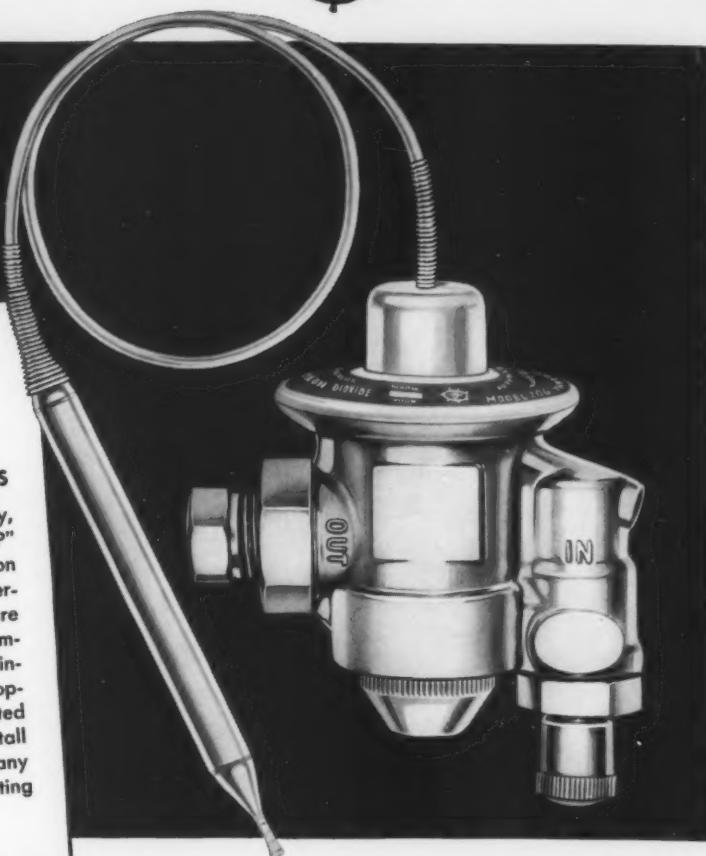


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EXPANSION VALVE

Ideal...
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● For close coil regulation and steady, dependable performance, use this "A-P" Model 206 Thermostatic Expansion Valve. Factory-set at your desired superheat setting, no field adjustments are required, and the valve remains tamper-proof. Built under rigid factory inspection — with all parts microscopically examined and thoroughly tested during and after fabrication. Install Model 206 with full confidence in any application where the superheat setting has been predetermined.



Wherever a non-adjustable expansion valve is required, or preferred, the A-P Model 206 is best. Absolutely reliable and dependable, it maintains a constant superheat over a wide range of evaporator temperatures — a real advantage in this type of valve. Its maximum capacity — 0.61 tons Freon; 1.32 tons Methyl or Sulphur.

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tional advantages and old age comforts!

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The Treasury Department acknowledges with appreciation the publication of this message by

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